Fairly Confidential

By R. Albion Taylor, Jr.
U. S. C. S. C.

The Navy Yard Service employ women in at least 11 types of positions in industrial occupations: Helper trainee; mechanic-learner; helper, general; aircraft fabric worker; ordnance worker (female); minor inspector of engineering materials (ordnance); aircraft spark plug worker; sewer; primer worker; pressfeeder, folder, and stitcher. Women have been employed in the last three types of positions for many years; the others have only recently been opened to them.

Wages for each of these types of jobs may differ from one navy yard to another, as they are set in accordance with the prevailing wage in the locality. The duties belonging to each type of position may also vary among the navy yards because of differences in the types of work performed by the yards.

The positions of helper trainee and mechanic-learner are entrance points for women with little or no previous trade experience or training. Employees in the former job are expected to have some previous experience or training, and upon entrance on duty are given intensive training over a short period for specialized mechanical work. Employees in the latter job are required to show mechanical aptitude, but need have little or no previous experience or training. They are given intensive training, over a short period, for advancement.

While undergoing training, both helper trainees and mechanic-learners perform actual productive work by assisting skilled artisans in minor tasks which do not require much previous preparation. Because of the wide range of these tasks, it is impracticable to give typical illustrations.

The general nature of the other 9 jobs is as follows:

Helpers, general assist other workers by performing duties of lesser skill, such as keeping them supplied with materials, tools, and supplies; cleaning the working area, machine, and equipment; performing routine machine operations, such as feeding or unloading the machine; and holding materials or tools.

Aircraft fabric workers lay out, cut, and sew airplane fabric to form covering for wings, fuselage, and tail surfaces of aircraft; fit completed fabric to aircraft and fasten it on; and perform other related duties.

Ordnance workers and Ordnance operatives may perform any of a large number of duties in connection with the manufacture of ordnance equipment, including details for optical, mechanical, and electrical equipment. For example, they may gauge and assemble parts.

Minor inspectors of engineering materials (ordnance) perform routine inspections of a repetitive character, i.e., inspect continually the same type of work at the same stage of completion as it reaches their point in the production line. Normally, the principal duty of this job is gauging; the inspector passes a gauge over a part to determine whether it will pass or not.

new classification not known if we on it yet.

upgrading here probably no change here.

Aircraft spark plug workers disassemble, inspect, clean, reassemble, and test spark plugs, which work involves many routine operations.

not new for w

Sewers sew by hand and machine, lay out, and cut flags, clothing, bedding, and other articles.

Primer workers inspect and assemble components of fuses, primers, tracers, detonators, and similar ordnance materials.

Pressfeeders, folders, and stitchers feed paper into a printing press; fold; inspect printed units to make sure that all units have been assembled and are in proper order; stitch the units together, by hand or machine, to form a pamphlet or book.

No attempt has been made to give the details of these jobs; the information given is intended only to indicate the general character of the work.

The navy yards also employ many women in clerical, technical, and professional occupations.

(apprentice draftsmen)

see the Miller books for more on this

April 10, 1942

Cannot get numbers of Navy Yards.

Must say - if used for any purpose.

(1) that not all Navy Yards have these jobs.

(2) that not all Navy Yards are calling for women in these jobs

(3) consult nearest Civil Service district office for announcements of what is wanted in that area.

TRAINING OF WOMEN

Training of Women in Aircraft Assembly Plants

There are few well defined training plans for women, women in small numbers have been admitted to individual or mixed classes, and large numbers have attended private schools.

Company officials were not prone to favor extensive pre-employment training of either men or women for the bulk of the jobs in the aircraft industry, but on the other hand they admitted somewhat grudgingly that the applicant who had pre-employment training either in a public school or a private fee school was given preference by the employment department, and the records showed this practice.

In California the two outstanding training programs for women in numbers affected were at San Diego and Long Beach and practically all women taking these courses have been placed. In the ~~city of Louisiana~~ L.A. School District, the first V.E.N.D. course for women for aircraft work opened in February 1942 - sheet metal and general assembly work - with 100 girls enrolled. When the Women's Bureau agent made inquiry in regard to pre-employment training for women in California, one plant presented a plan for a 36 hour course of class work - including training in use of tools, machines, materials, processes, blue

print reading in lieu of training as offered by V.E.N.D., to be given by the plant or school - a very sketchy plan.

In Wichita, Kansas, at time of visit, only pre-employment course reported open to women was in wood work.

In Oklahoma, New York, and Missouri no pre-employment shop courses open to women.

In Texas and Tennessee pre-employment shop courses were open to women and in Ohio 1 plant required pre-employment training or previous industrial experience for all women operatives.

The <u>off-reservation</u> training program for service in Army Air Corps depots and repair shops administered by Civil Service, recruited applicants during February 1942 - estimated 15,000 applied in California, half women - but only a few hundred women had been acceptd by middle of March. They are paid $75.00 per month while in training. The courses vary from 8-15 weeks.

TRAINING OF WOMEN FOR SMALL ARMS AMMUNITION

The jobs held by women in the manufacture of small arms ammunition and those on which women are most likely to be substituted for men are not of the type which requires an extensive training program. Most of the machines operated, typical ones being bullet assembly, loading, primer inserting, etc., require careful, alert and dependable workers rather than those with specific skills. Inspectors, packers and general helpers, also, are trained on the job in a short period of weeks. Schools do not have and cannot obtain the type of equipment necessary to train girls for machine jobs in small arms ammunition.

A number of small arms ammunition plants have commented, however, on the need for mechanics' helpers and machine operators for maintenance and machine shop work. If women were given machine shop training in the operating of drill presses, lathes and basic shop machines, some could be used on jobs of this nature. Also, supplementary courses for upgrading should be offered to women and women should be encouraged to avail themselves of this type of training whether in defense schools or within the plant on the same basis as men.

In all plants visited the shop women were trained in the job in less than 6 weeks

TRAINING OF WOMEN IN BAG LOADING AND SHELL LOADING PLANTS

In this branch of the industry, as in small arms ammunition, pre-employment training is of little importance, as all women can be trained on the job in a few weeks. This was true in all plants visited by Women's Bureau agents, except some sewing machine operators had received previous training.

USE OF UNITED STATES EMPLOYMENT SERVICE BY PLANTS

Ammunition Plants

While only a few (3) plants reported that the local United States Employment Service was not used at all, most of the new plants had set up their own employment offices where practically all applications were filed and preliminary interviewing carried on.

Aircraft Assembly Plants

All the plants used the United States Employment Service to a limited extent. Recently a centralized office (United States Employment Service and individual company representatives) in Los Angeles has been set up for employment and all the major aircraft companies are referring applicants to this office.

A4245

Return to Spring

FEDERAL WORKS AGENCY
Work Projects Administration

MEMORANDUM

April 8, 1942

Changes in Employment, Unemployment, and the Labor Force Between February and March 1942, With Estimates for the Week of March 8-14, 1942

Employment increased by 1,800,000 persons between February and March 1942, according to the returns from our sample Monthly Report of Unemployment. At the same time, there was a rise of 1,400,000 persons in the Nation's working force and a decline of 400,000 in the unemployed.

In absolute numbers, the February--March 1942 estimates (excluding an estimate of the number of persons in the armed forces and in institutions) are as follows:

In millions of persons

	March	February
Labor force	54.0	52.6
Employed.	50.4	48.6
Unemployed.	3.6	4.0

(Similar figures for the period April 1940 to date are shown on the attached table.)

While some expansion of the working force and of employment was to be expected as a result of strictly seasonal developments, the March increase was much more than seasonal. The decline in unemployment, on the other hand, was no more than was to be expected at this time of the year. The large increase in workers and in employment, therefore, indicates a more-than-normal expansion of the Nation's working force under the impetus of war activity.

Increases in the working force and in employment were general throughout the country. Rural counties (of less than 45,000 population) reported increased activity and, for a number of important crops, substantially increased acreage, in response to appeals for increased production and to the most favorable agricultural price situation that has existed for years. Perhaps for these reasons, the seasonal upturn in agricultural activity was earlier this year than last and some of the normal expansion of later months may have been included in the March figures. Urban counties (of 45,000 to 1,000,000 population), as well as the five metropolitan centers (New York, Chicago, Philadelphia, Detroit, and Los Angeles) reported increased employment because of plant expansion, double or triple shifts, and conversion to war production.

Although in March there was considerable evidence that dislocations arising from conversion of industry to war production, shortage of materials, restrictions on retail sales, etc., had combined to displace a substantial number of workers from their peacetime pursuits, the mobilization of industry, including agriculture, in a total war effort had more than counterbalanced these displacements.

The large increase in the labor force should be encouraging to those who have been concerned over the possible development of a general labor shortage. As long as the labor force continues to expand, however, unemployment can not be expected to decrease in amounts equal to the increases in employment.

FEDERAL WORKS AGENCY
Work Projects Administration
Division of Research and Statistics

Attachment

A4245

ESTIMATES OF THE LABOR FORCE, EMPLOYMENT AND UNEMPLOYMENT IN THE UNITED STATES, APRIL 1940 - MARCH 1942

(Millions of persons)

Month and year	Labor force1/	Employment1/	Unemployment
1940			
April	53.9	45.1	8.8
May	54.7	46.3	8.4
June	56.3	47.7	8.6
July	57.0	47.7	9.3
August	56.7	47.8	8.9
September	55.2	48.1	7.1
October	54.8	47.4	7.4
November	53.9	46.3	7.6
December	53.2	46.1	7.1
1941			
January	52.8	45.2	7.6
February	52.7	45.5	7.2
March	52.4	45.6	6.8
April	53.3	46.7	6.6
May	54.0	48.3	5.7
June	55.7	49.8	5.9
July	56.0	50.4	5.6
August	55.8	50.5	5.3
September	54.3	49.8	4.5
October	53.5	49.6	3.9
November	53.3	49.4	3.9
December	53.3	49.5	3.8
1942			
January	52.4	48.2	4.2
February	52.6	48.6	4.0
March	54.0	50.4	3.6

1/ Excludes institutional population and estimated number of persons in the armed forces.

27914

Miss Spring

ADVANCE RELEASE: Not to be used in any form before 10:15 PM, EWT, Tuesday, March 10, 1942.

(Sheep)

WAR PRODUCTION BOARD WPB 500

Address by Donald M. Nelson, Chairman, War Production Board, on the Mutual Broadcasting System at 10:15 PM, EWT, originating in Washington from Station WOL.

My Fellow Americans:

Since I spoke on the radio last week I've heard from an awful lot of people. They have communicated with me by wire, phone and letter. I've heard from management. I've heard from labor. And I've heard, in particular, voices of that great and decisive body we know as the public. It is an alert public; not asleep to our danger. It is not complacent. It is to an extent dissatisfied. It is determined; not indifferent. If I read my mail aright, this public that has spoken to me wants production, and no fooling. It wants it with such an intensity of feeling that it is going to get it one way or another. So, let's talk about that a minute. Let's be perfectly frank. Let's begin by saying that neither management nor labor in plants working on war orders; nor management and labor together in those plants, could survive the public wrath should that wrath be turned against them; nor could we here on the War Production Board. That I believe to be a statement no one can deny. That is, therefore, the situation we face. That is the broad base upon which we must stand. Recognizing this to be the fact, we can reason only as follows:

There are two ways to get production. The first is for Government---meaning especially the Army, the Navy, the Maritime Commission and the War Production Board---to provide the blueprints of what is wanted; the schedules for when it is wanted; to see that adequate facilities are available for production; to see that the materials are available for those machines and then have management and labor bend every conceivable effort to achieve maximum production quickly. That is the way I want to see it done. That is the way the public would like to see it done. That is the American way. That is, in effect, what we are fighting to maintain in this country. There can be no one within sound of my voice but who agrees, if he thinks about it at all. But, do we really understand what it means in terms of alternatives? Remember, I am saying the public wants production, not only wants, but is demanding production.

It is my considered opinion that the public will not waver in its determination, and, as I said a moment ago, it will get production one way or another. There is, however, but one other way than the one we follow now. That

is the way of our enemies. That is the way of bondage; of force the way of the totalitarian state. That is also the way to the destruction of everything we have fought for and worked to maintain and cultivate from the day this nation was founded. But our enemies are using this method and, as I said last week, they have brought production to a high peak. We face the absolute necessity of matching that production and surpassing it.

We are today face to face with an enemy determined to destroy us. We have to have weapons to defend ourselves physically here and now. We have got to have more and more, and ever more planes, tanks, ships and guns to carry the fight directly to the enemy and annihilate him. I believe the necessity for having those weapons now transcends all other matters in the public mind, either political or economic. If, therefore, we are to achieve victory for the ideals we free men have always loved, then we on the production lines must abandon every other consideration except increasing production and increasing it every day. If we fail in that, we shall burn in the flames of a public wrath so intense that in its heat it might consume the very standards we have set for free men to live by.

But now, let's look in our tool-box. Are the tools laid away in grease or are they hot in the hands of men who know how to use them? Right now we've got some in the box and some in the hand.

I'll put it this way: If all our equipment now involved in war production were used 24 hours a day, seven days a week, we would practically double the man-hours being put into military production.

When I say we can increase production substantially by greater use of existing machinery, I am thinking of the 20 per cent of war plants operating only five or five and one-half days a week. I am thinking of the many plants closed Sundays. I have in mind the second shifts using only 40 per cent of plant capacity and the third shifts using only 20 per cent. This, as you can readily understand, means that thousands of machines needed for war production now stand idle part or all of every week-end and from eight to 16 hours every week-day. And, I might add, idle tools work for Hitler.

Let me be even more specific because I want all of you to understand just what we face, even though I risk confusing you with figures. There are, for example, 31 aircraft engine and propeller plants. If the facilities of all were utilized to the same extent as the three with the best records, we could increas production immediately in these plants by at least 25 per cent.

Take the 155 plants manufacturing machine tools. If all were operating at the same level of utilization as the top three, we could increase machine tool output 45 per cent immediately.

I can hear you saying: "Well---you're chairman of the War Production Board. What are you doing about it?"

In brief, my answer is---we are doing something about it. The Production Drive we are now starting is one step. Another involves the reorganized, hard-hitting procurement setup of the Army, the Navy and the Maritime Commission integrated into a unified supply system with the War Production Board. Through such measures we expect to get the kind of all-out action that will mean much greater plant utilization.

You can't get this maximum production by pressing a button or by giving an order merely by making speeches. There are many problems to be solved. In

some cases there is a reluctance to increase the number of shifts; in others there is a faulty flow of materials; in still others, there is what you might describe as a lack of imagination in seeing how production can be increased with the equipment at hand; there are questions of time and one-half and double-time for holidays and Sundays; there are problems of training new men; there are changes in designs; there are shortages of certain specialized facilities and finally there is the absolute necessity of providing materials and machines for our allies.

None of us can solve one of these problems individually. Many of them are closely related and I therefore stressed in my first talk to you, and I am stressing again, the basic importance of thoroughly cooperative action among management, labor and Government to straighten out the road ahead. We must be animated by a spirit of attack. We have been on the defensive long enough. The attack begins here--here at home--here on the production line. It is a production offensive we must have before we can carry the war to a successful offensive against the enemy. We're in a fight. This is war.

And right here let me say that it is my belief that no contribution to that fighting spirit is made by the pointers of fingers. There were those, following my last talk, who asked why didn't I blame labor for lack of production. Others have unfounded suspicions that the Production Drive is some dark and devious method of turning industrial management over to labor. But there are always those who, when the cards are laid on the table, cannot believe there isn't a joker up somebody's sleeve.

Let me say this, once and for all--and believe me I know what I am talking about: There is no ONE cause for the slack in our production. You cannot assign blame to any single group and say: "That is the root of the evil." The truth is that there are many causes, as I have indicated. It means simply that we have to work harder. Name-calling won't help. Smearing won't produce guns. Such stuff is distracting. It takes the eye off the sight when it should at all times be on the target. We've got to get tough with ourselves before we try to get tough with someone else.

Everyone of the problems we face is bigger than any of use. That is why we are tackling this thing in the traditional American way--getting together, cooperatively, to fight the thing through to a finish. Of course, it isn't easy and it's going to be harder. But we've got to stick together. I know there are plants where there has been little management-labor cooperation normally. I am also aware of the tradition of mutual rivalry and suspicion in some plants vital to our war production. I know it is sometimes difficult for human beings to forget and forego differences and work whole-heartedly for the common welfare. But I was never surer of anything in my life than I am that we either work together for the common good or we shall inevitably share the common evil of defeat.

For that reason I want to say to labor and management: We, and you, are on trial today before the American public. This is our last chance to show that a free economy can survive and be strong. If free men in America can't use the strength which freedom gives to turn in a far better job than the slaves of our enemies, then freedom dies and that, may I add, includes the freedom of enterprise to which we are looking to deliver these goods.

We have but little time. That time has been bought at the price of American boys fighting on lonely islands, in steaming jungles; by American boys aboard storm-tossed warships warding off the death that strikes from the clouds and from beneath the wave; by American boys fighting in the best warplanes in the world, planes of which we must make more and more fast. If through selfishness, inertia, indifference or any other cause we let them down, then the American people will damn us forever more.

This is, after all, a personal matter with each of us. Because it is, I want to read from a letter I received after my last talk. It is from a young man who works in a powder plant. I never saw him; never heard of him until he wrote to me last week. He began by saying: "This is a letter from one of your soldiers of the production line." He explained that he worked on a night shift, beginning at midnight. He said he usually got a little drowsy but that after he heard last week's talk he got to thinking about it and realized the size of the problem. "Not once did I get sleepy," he said. "I tried to tell the other fellows on my shift what I had heard and the conclusion drawn by each of us was that we could not possibly see how anyone who is one of your soldiers on the production line could do anything else but put every effort possible into their work to help those other soldiers of the battleline. I am 20 years of age," my young friend wrote, "and have registered for the draft, but no matter whether I am called to the colors or stay on the job here, I shall always remember your speech and how I felt as never before that it is up to me to keep things going."

My fellow Americans, I have taken that boy's words to heart. I hope all of you, and particularly those of you in the war industries, will do the same. The job isn't up to the fellow at the next bench; the boss, or somebody way off in Washington.

Last week I said we had 304 days to make the great goals which can put victory within our grasp. Tonight, I want to remind you that eight of those days have passed. There are but 296 left. So I say to you, each of us here at home must take the offensive now. Each of us must do his full share on each and every one of those remaining 296 days.

We must all say, as my young friend has said:

"It is up to me to keep things going."

DEPARTMENT OF LABOR

No. 204

GPO

March 21, 1941

35,000 rounds Army assorted as
per wire 13,000 - 1939.
Products - small arms ammo 5000,
artillery cartridge cases 1200,
fuse central units 900,
artillery shells 3000,
Small rifles 1600
Ammunition ammo 900.

Dec 28, 1940

The Nat. Defense Advisory Commission

Functions and Activities

16th Congress appropriated 10 bill + & authorized
the 6 bill + additional to assemble strength of navy
up to 1,200,000 men + 4 provided equipment for
additional 800,000 men + an two ocean Navy.

Army & Navy awards: 9 bill in dollars.

3.3 billion for ships
1.5 " for construction of factory & plant
+ for training.
1.5 " for plants & parts
600 mill + for ammunition
500 " for guns
400 " for tanks & trucks.

Call for (includes British with & other foreign orders)

50,000 airplanes
130,000 machine guns
17,000 heavy guns
25,000 light guns
13,000 Flame throwers
33 million shells loaded
& 200 tanks
300,000 motor guns & ammunition
400,000 automatic rifles & ammunition
1,300,000 regular rifles & ammunition

380 heavy ships
200 merchant ships
210 camps & cantonments
40 test. factories

Ibid.

Clothing & equipment for 1, 2M, M

1st mass produced in tank factory in the world
5 smelters, powder & light artillery plants
6 shell, bag, & ammunition loading plants
5 new machine gun plants
50, M new trucks.

Deliveries on these contracts show:
2+M airplane engines monthly
7M airplanes "
over 1M light tanks "
over the 10, MM H, semi and auto rifles.
one fighting ship for the Navy every 12 days.

175,000,000 Army Equipment = $.

975,000 revolvers
000,000 Machine guns
000,000 anti aircraft guns
690,000 pairs field glasses
000,000 field radios
000,000 field jackets.
000,000 pairs field shoes } $12,285,000
000,000 field uniforms
000,000 pairs rubber gloves $1,640,000
700,000 gas & lung masks $3,978,507
260,000 gross of first aid packets
790,000 gross of antiseptic dressings
000,000 gross of medical supplies $4,426,472
000,000 gross canteens & cups $1607,661
000,000 gross mess kits

Gun Belts 2,955,000
Bayonets 3,000,000

mule skinners $69,450
mule blankets 13,740,000
Cannon & shells 21,980,65.
mule harness $26,100,000
8.2 cotton blankets

Small Stores $11,070,000
Bridges $20,644,132

School Children and the War Series
Leaflet No. 2 (Preliminary copy)

ALL-DAY SCHOOL PROGRAMS FOR CHILDREN OF WORKING MOTHERS

SOME QUESTIONS THAT NEED TO BE ANSWERED:

What is the all-day school program?

What does the all-day school program do for children?

How can a community interested in such a program get one started?

How can a planning group determine the need for such a program?

How can the planning group determine what resources are already available in the community?

What kinds of activities should be included in the program?

What are typical daily schedules for an all-day school program?

How does a schedule work out for individual children?

What general principles underlie the program before and after regular school hours?

Where should the program be located?

What space and housing facilities are needed?

What equipment is necessary for the expanded program?

Is trained personnel needed?

How large a staff is needed?

Can volunteers be used?

What are the possible sources of financial support?

Federal Security Agency
U. S. OFFICE OF EDUCATION

What is the all-day school program?

The "all-day school program" is here defined as that phase of extended school services which is designed for children beyond nursery school age, from about 5 to 14 years. Children of nursery school age are also included in the total program of extended school services, but these are considered in another leaflet of this series.1/ A group of children come together for the entire day, perhaps every day of the week, during winter and summer. The program includes the regular school session as a nucleus, but it also includes the hours before and after school, when children are ordinarily at home or otherwise under parental supervision. Thus the program is often from about 7 or 8 a. m. to 6 or 7 p. m. These hours depend, of course, upon the hours during which the children of working mothers need care.

What does the all-day school program do for children?

It provides children with happy, fruitful, and healthful activities in addition to those already provided by the regular school program. In many cases, too, the children may need to have one or more meals provided for them during the hours when their mothers are away from home.

How can a community interested in such a program get one started?

Of course, no community project for an all-day school program can or will get under way unless the problem is first recognized as being present in the community. This recognition of the problem may come through the initiative of an individual or group of individuals (teachers, parents, social workers), or an organization. No matter who starts the ball rolling, plans cannot proceed very far without the cooperation of several organized groups. Because the school is a community agency close to the lives of both the parents and the children, it is in a strategic position to assume leadership on this problem. It is imperative, however, that the school work actively with other agencies in planning the program. It is also important that the parents faced with the problem of providing care for their children have an opportunity to express themselves and to help with the details of the program. Only in this way can all aspects of the welfare of the children be met and active cooperation be secured. A small planning group, representing all interested agencies, should determine policies, study financial arrangements, and plan for the program itself.

How can a planning group determine the need for such a program?

The all-day school program must meet the needs of the group to be served. To be considered in determining such needs are the number and ages of the children who cannot have the necessary home care, the days of the week and the time of day when their mothers are working, the number of meals to be served, and the resources available for meeting the needs. Therefore, it will be necessary for the planning group to sponsor a survey. This survey may be conducted on a neighborhood basis through a house-to-house canvass, through the schools, the social agencies, the

1/ See leaflet No. 3 of this series for consideration of the nursery school program: "Nursery Schools Are Vital to America's War Effort."

newspapers, or the factories. The school survey will give for the children attending school the broadest coverage. A questionnaire similar to those that have been used in some communities is given on pages 4 and 5. The information gained through such a form will need to be pursued further if additional data concerning the exact needs of the children and the extent of the resources of the parents are desired. Such an approach will involve counseling service to parents.

How can the planning group determine what resources are already available in the community?

All existing services under both public and private auspices should be studied to determine to what extent they can be used or adapted for meeting the need for all-day school programs and for serving meals to children of working mothers. Information concerning present community resources, both physical facilities and professional services, may be on file with councils of social agencies, defense councils, chambers of commerce, health authorities, or other central planning groups. These sources should not be overlooked. Only information that is not available otherwise should be collected by the planning group. By studying existing resources, one community was able to obtain for the all-day program morning health inspection of the children by a nurse from the city health department; another secured the part-time services of a nutritionist through the community hospital; another secured the services of recreational leaders.

What kinds of activities should be included in the program?

The activities will vary with both the ages and interests of the children. The following, however, are large general classifications which apply more or less to all age groups:

Active Play

Group and team games (tag, cat and mouse, fox and geese, hide and seek, prisoner's base, relay races, ball games).

Self-directed activities (block building, hopscotch, jumping rope, ball bouncing and throwing, swinging, apparatus play, stunts, swimming, wrestling, boxing).

Rhythmic activities (folk dancing, singing games, rhythm band, tap and creative dancing).

Dramatic play (housekeeping, cowboys and Indians, soldier, war, school, store) and dramatics (for older children).

Quiet Play

Arts and crafts (clay modeling, sewing, drawing and painting, simple woodworking, carving, weaving, puppet making).

Self-directed games and activities (sand play, card games, puzzles, checkers, Parchesi).

EXTENDED SCHOOL SERVICES FOR CHILDREN
OF WORKING MOTHERS
Inquiry Form For Use With Parents

To Mothers of School Children:

Many women who are working in this community find it difficult to make satisfactory arrangement for the care of their children. We want to help with this problem. To do this we must first obtain information about the numbers of children of women who are now working and of women who would like to enter employment. We must also secure the names of women who are not working and do not intend to work for wages but who would offer to assist with the school program for children of working mothers. To help provide this information, will you answer the questions in the following inquiry which apply to you? If you receive more than one of these inquiries, answer only one.

_____
Superintendent of Schools

1. Are you employed outside your home? Yes____ No____

   If you are not now employed outside your home, would you go to work if you could make satisfactory arrangements for the care of your children? Yes____ No____

   If you are not now employed and do not intend to enter employment, would you volunteer your services to help care for the children of women who are employed outside the home? Yes____ No____

   If so, please check the types of work for which you are fitted:

Craft work	_____	Sewing	_____	Other	_____
Supervised games	_____	Nature study	_____		_____
Dancing	_____	Child care	_____		_____
Music	_____	Cooking	_____		_____

   If you have already reported this information to a volunteer registration agency, disregard this inquiry.

2. If you are NOW EMPLOYED OUTSIDE YOUR HOME, OR WOULD LIKE TO BE EMPLOYED, please give the following information:

   How many children do you have who are 14 years of age or under? _____

   Please give the following information about each one of them:

Age	Sex	Name of school attended (either public or private)	Grade in school

For what hours do you need to have the schools provide a nursery school or kindergarten for your children 2 to 5 years old? _____

For what time do you need to have the schools provide care for your children 6 to 14 years old?

Before and after school? _____ Vacation time? _____
Saturdays and holidays? _____ At night? _____
Noon lunch? _____

3. If you are NOW EMPLOYED OUTSIDE THE HOME, please give the following information:

What is the name of your employer, or the firm for which you work? _____

What are your working hours, including the time needed to get to and from work? From _____ To _____

Who takes care of your children while you are away from home?

Father _____ Girl under 16 _____
Older child in family _____ Woman _____
Relative (Who?) _____ Other arrangements _____
Neighbor _____ _____

How much does the care of your children cost by the week? $_____

Are you satisfied with the present arrangement? Yes ___ No ___

4. What is the present occupation of your husband? _____

What is the name of his employer, or the firm for which he works? _____

What are his working hours? From _____ To _____

_____ _____
(Name) (Address)

Stories, poetry, and drama (story-telling, reading--individual and with the group, creative writing of stories, poetry, and plays).

Nature activities (nature walks, collections, exhibits).

Music (singing, listening to music by radio, victrola, piano).

Movies (both entertaining and informational films).

Excursions (trips to a place of interest such as a museum, construction work, zoo, dairy, farm, post office, etc.).

Household duties - Children can share and get much pleasure out of putting away materials or helping to prepare and serve meals for their own group and for younger groups.

Club and hobby groups - Beginning at about age 9 there is a growing interest in social grouping. The club idea with its officers, name, and organization is very appealing. Sometimes a club may be short-lived, having served its purpose; again real interest in a mutual hobby may hold it together for a long time. The wise leader uses this interest in his program.

Group discussions or "get togethers" (discussions of plans for the day, discussions before and after a trip, discussion of world events).

War work (salvage collections, gardening, Red Cross work, and other activities providing specific opportunities for children to help with the war effort).

Rest - Younger children should lie down for a 10- or 20-minute period of rest during each half-day period; quiet listening to stories or music may provide all the rest necessary for older children.

Special opportunities - These may be arranged on the basis of the payment of small fees. (Music lessons, dancing lessons, swimming lessons).

What are typical daily schedules for an all-day school program?

Daily programs differ so greatly that sample schedules can only be suggestive. The schedules here given do not attempt to cover the activities of the regular school session, but only those of the hours before and after this session. These should be especially flexible, changing from day to day, with materials varied enough to permit a wide choice. They should provide for much supervised free play, and a limited amount of directed play. The schedules given presuppose facilities and equipment which allow an extensive range of activities for the individual boy and girl.

Monday, Tuesday, Wednesday, Thursday, and Friday Program 2/

A. M.	
7:00 - 9:00	Breakfast; housekeeping activities; supervised play.
9:00 -12:00	Regular school session.
P. M.	
12:00 - 1:15	Preparation for dinner; dinner; rest, outdoor play.
1:15 - 2:00	Regular school session.
(2:30, 3:00 or 3:30)	
2:00 (2:30) 4:15	For younger children: - Free play, largely individual or small group activities such as sand play, block building, swinging, toy play activities with play equipment, water play, dramatic play, wood working, clay modeling, painting, simple games; lunch (fruit juice or milk with whole wheat sandwich) at about 3 or 3:30 p. m.; rest.
	For older children: - Active outdoor play (directed part of time); organized team games.
4:15 - 5:30	For younger children: - Indoor activities, small group or individual play; story telling; music for listening; rhythmic responses to music; simple trips.
	For older children: - Club or hobby groups; reading, dramatics; quic games; excursions; movies, radio; work and community projects.
5:30 - 5:45	Preparation for supper
5:45 - 7:00	Supper:
	For younger children: - Quiet activities, such as story telling, singing, individual play.
	For older children: - Quiet activities, such as reading, conversation, games, personal projects.

Saturday, Sunday, and Vacation Program

A. M.	
7:00 - 8:30	Breakfast, housekeeping activities; quiet activities.
8:30 -10:00	For younger children: - Free play, largely individual or small group activities, such as sand play, block building, swinging, toy play, activities with play equipment, water play, dramatic play, wood working, clay modeling, painting, simple games.
	For older children: - Active outdoor play (directed part of time); organized team games.
10:00 -10:45	For younger children: - Lunch (fruit juice, tomato juice or milk, whole-grain or graham wafer); rest.
	For older children: - Music appreciation; conversation; reading; movies; radio.

2/ This program may be reduced or increased for any group of children according to needs.

10:45 -11:45	Arts and crafts.
11:45 -12:00	Preparation for dinner.
P. M.	
12:00 - 1:45	Dinner; rest; conversation; story hour; group singing.
1:45 - 3:45	For younger children: - Free play, largely individual or small group activities; lunch (fruit juice or milk and whole-wheat sandwich) at about 3 or 3:30 p.m.; rest.
	For older children: - Active play out-of-doors; excursions; swimming; organized games.
3:45 - 5:30	For younger children: - Free play; music for listening; group singing; free rhythmic responses to music; simple trips; stories.
	For older children: - Individual activities; stories; reading; hobbies; group activities; dramatics; discussions; movies; radio.
5:30 - 5:45	Preparation for supper.
5:45 - 7:00	Supper; housekeeping activities; quiet activities.

How does a schedule work out for individual children?

The program is dedicated to the child's individual needs. Let us look at a day in the lives of two different children in attendance at an all-day school program. The day is Saturday.

The first child is Billy, an active, sturdy boy of 10 years whose mother works from 8 in the morning until 4 in the afternoon.

Billy arrived at school one Saturday morning at 7 o'clock and had his breakfast immediately. This was his program of events for the day:

A. M.	
7:00 - 8:30	Breakfast. Helped teacher get out play equipment; set up the "ball diamond."
8:30 -10:00	Played baseball - "Yanks" vs "Dodgers." Billy was a Yank on the winning team.
10:00 -10:45	Went into playroom for a period of quiet play; spent a short time reading and then worked at the work bench on a model plane.
10:45 -11:45	Continued to work on his own plane; spent part of time helping Tommy with his.
11:45 -12:00	"Cleaned up" for dinner.
P. M.	
12:00 - 1:45	Dinner. Listened to story being told by a volunteer worker, a librarian; joined group singing for awhile.
1:45 - 3:45	Took active part in a variety of games - hide and seek, prisoner's base, marbles; then went swimming in the school pool.
3:45 - 5:00	Painted his plane; helped Tommy some more.
5:00	Returned home, taking "main supper dish" with him.

The second child is Bobby, a boy of 9 years who has a paralyzed leg which keeps him out of all running games. He is a serious, quiet, little boy who finds social acceptance through helpfulness to others. Bobby's mother works in an armament plant from 8 in the morning until 4 in the afternoon.

Bobby, too, arived at school on Saturday at 7 in the morning. He took part in the following activities:

A. M.	7:00- 8:30	Breakfast. Helped straighten up dining room.
	8:30-10:00	Acted as "umpire" for a baseball game; spent some time swinging; helped pick up some of the toys scattered about by the younger children; spent some time watching the activities of other children.
	10:00-10:45	Listened to music played on the victrola; spent some time reading western story.
	10:45-11:45	Divided his time between clay modeling and wood carving, intent on carving a bucking horse with a cowboy clinging to his back.
	11:45-12:00	Got ready for dinner.
P. M.	12:00- 1:45	Dinner; rest. Listened to story told by the volunteer "story-teller."
	1:45- 5:00	Read some more in his book; worked at wood carving; took part in group dramatics and rhythm band; went swimming.
	5:00	Went home.

These little boys are but two of the many children who will find in the all-day school program activities suited to their individual interests and needs.

What general principles underlie the program before and after regular school hours?

Obviously the all-day school program will vary from one school to another and from one community to another depending on the ages and interests of the children; the hours of operation; arrangements of building and space; interests and abilities of the teachers and leaders. However, there are a few principles which can be generally applied:

The program should provide the children with an active social life with companions of their age; with space, material, and opportunity for happy play and for all the creative activities (arts, crafts, drama, excursions); with guidance which will help them to understand their new and changed life.

The program should provide children with an opportunity to take responsibilities appropriate to their ages.

The program for any group of children must be well-balanced during the entire day. If the children are kept indoors all morning and early afternoon by their regular school program, the rest of the program should provide for plenty of outdoor play. There should also be a balance between active and quiet play.

The program should provide safeguards for both mental and physical health.

The program should provide a carefully planned schedule which, although flexible, places certain routine activities, such as eating and resting, at the same time each day.

There should be both short-term and long-term planning of activities. Long-term planning concerns activities which may be carried for a period of six months more; short-term planning concerns daily and weekly activities in terms of the immediate interests of the children.

Provision should be made for variation of activities to meet the children's needs and interests. Different play activities will be carried on at the same time by different children, generally through the child's own choice. Time in which to be alone, to engage in solitary play, or merely to watch should be provided. Special provisions should be made for children with cardiac difficulties, malnourishment, or undernourishment, or other physical handicaps.

The day's schedule should allow for a maximum amount of outdoor play, even in winter.

The teacher or leader should not be an arbitrary authority but a guide who encourages independence, initiative, self-reliance, confidence, friendship, and happy relations between children. He should be alert to evidences of strain and know how to minimize them.

Where should the program be located?

It should be easily accessible to the homes of the children whom it serves; it should, if possible, be located in the immediate neighborhood. If a large territory is to be included, convenience to parent's work and transportation facilities should be considered. The regular school sessions will, of course, be carried on in the school building. If the activities before and after regular schools hours cannot be located in the school, accessibility to the school should be achieved, because school children are to be accommodated. In some communities, where large war industries have moved in and where it is necessary to use a double shift for the regular school program, the school plant facilities may be too small to house the total program. Under such circumstances, space may be found in public housing projects, churches, club houses, settlements, parks, and vacant houses (if they contain large rooms), depending upon what is available in the community.

In any case, school authorities should be responsible for the complete utilization of the school plant facilities. The services here discussed and so urgently needed are school services. Consequently school authorities must accept responsibility for their provision either in the school buildings or in buildings and other facilities not now so used but adaptable for these purposes.

What space and housing facilities are needed?

The all-day school program requires both indoor and outdoor space. The indoor space should include a playroom (which may also be used for eating and if necessary for sleeping), toilet facilities, and a kitchen. There is bound to be wide variation in plant in accordance with the size of the program. A program caring for only 20 small children might have exclusive use of only one large room, whereas a program handling five different age groups might have five or six playrooms, a separate sleeping or rest room for the younger children, an eating room, an isolation room, and a large well-equipped kitchen. The building

should conform to local and State building codes and have the approval of the fire marshall and health officer. A safely enclosed or protected outdoor playground containing some play equipment is also essential.

What equipment is necessary for the expanded program?

Play materials, although essential to a successful program, need not be expensive. They may consist largely of homemade or improvised materials. Equipment for outdoor play should be available in all programs: Swings, slide, teeter-totter, trapezes, rings, ladders, packing boxes, balls (basketball, football, volley ball), baseball equipment, etc. Many schools already have such equipment on hand for use in the regular program.

Dolls, housekeeping toys, blocks, wagons, trucks, sandbox, trains, and tricycles should be provided for the children in the younger groups. Materials and equipment for crafts should be provided as needed. In many cases improvised or substitute materials can be used. Games, puzzles, and musical instruments will be needed in most programs. A shelf of well-selected books and miscellaneous magazines should be available for all age groups.

Is trained personnel needed?

Yes, by all means. The provision of adequate and qualified personnel is of first importance. The quality and experiences of the care of the children depend upon it. Training should be comparable to that required for the regular school program. In addition, most classroom teachers will need some supplemental training before assuming the responsibility of recreational groups.

Education, social work, child development, psychology, and recreation all represent good general backgrounds of experience for this work. By staggering teachers' hours of service and by using additional recreational specialists when needed, trained leadership can be made available throughout the day. Schedules will, of course, need to be readjusted so that no one person will be called upon to give an unreasonable amount of time.

How large a staff is needed?

Naturally the size of the staff will vary with the situation and the size of the community. A small program may have only one or two paid staff members. For a large program the staff may include teachers and full-time or part-time recreational workers, doctor, nurse, social workers, dietitians, cooks, maids.

The number of children per teacher or adult worker in the periods before and after the regular school hours should be kept flexible, the size of a group depending upon the type of activity carried on. Some groups, as in music and in general playground activities, may be as large as 45 or 50, or even larger. Other groups, such as those organized for handwork and discussion projects, should be kept relatively small.

Can volunteers be used?

Yes. Through the local Civilian Defense Volunteer Office information may be secured as to available persons. Some professional men and women in the community - doctors, dentists, nurses, librarians, social workers, recreational specialists, and others - may be able to give a few hours each week in the line of their specialties. Nonprofessional persons, also, have a contribution to make. Those who lack training should, of course, be given the necessary preparation, and they should be supervised by the teachers or others on the professional staff. All volunteers should be selected in terms of the duties that they are to perform, their willingness to take training considered necessary, and their ability and willingness to give dependable service They may be used in connection with the activities of the children, clerical service, meal preparation and serving, health examination, and other special services.

Parents, too, can participate as volunteers, but they also need training in order to develop a common philosophy and understanding of the program. Some may serve on planning committees; some may assist with the necessary preliminary surveys; some, when not employed full-time, may assist with the actual program.

What are the possible sources of financial support?

Funds for maintaining the program may be available from State and local agencies responsible for education, welfare, and recreation, and from such agencies as defense councils, community chests, civic groups, churches, private contributors, including employers, and, last but not least, the parents themselves. Since the program is set up to meet the needs of parents earning increased wages, it may safely be assumed that at least a part of the cost can be met through fees from parents, the amount of which will be determined on the basis of local conditions and practice. Information regarding Federal financial participation will be made available through administrative memoranda issued from time to time by the Office of Education.

School Children and the War Series
Leaflet No. 3

NURSERY SCHOOLS ARE VITAL TO AMERICA'S WAR EFFORT

SOME QUESTIONS THAT NEED TO BE ANSWERED:

What is a nursery school?

What does the nursery school do for children?

What does the nursery school do for parents who work outside the home?

How many children are usually included in a nursery school group?

How large a staff is needed for a group of 25 or 30 children?

What is the first step in determining the extent to which children of working mothers need care in the community?

What groups in the community are likely to be interested in nursery schools for children of working mothers?

What procedures may be used in locating the children needing care?

What facilities are already available in the community for the care of young children of working mothers?

In what type of place should the nursery school be housed?

What kind of a playground does the nursery school need?

What kind of a program does the nursery school have?

What are the minimum essentials for equipment?

Does the nursery school need professionally trained teachers?

How can volunteer helpers be used in the nursery school?

What factors influence the cost of the nursery school program?

What are some sources of financial aid?

FEDERAL SECURITY AGENCY
U. S. Office of Education

NURSERY SCHOOLS ARE VITAL TO AMERICA'S WAR EFFORT

What is a nursery school?

The Association for Childhood Education defines a nursery school as "a day school whose program and environment are planned to stimulate learning and development of children too young to go to kindergarten. It works closely with parents so that both they and the teachers may understand the children better and together help them become strong, healthful, happy, and useful persons." Most of the children enrolled in nursery school are 3 and 4 years old. The age range is from 2 to 5 years. Five-year-olds are found in nursery schools, kindergarten, pre-primary or junior primary group, depending upon local conditions.

A nursery school is thus one of today's answers to the search for a good environment for young children which will supplement home guidance and provide experiences essential to the child's best development, physical, mental, and emotional.

What does the nursery school do for children?

First of all, the nursery school offers the young children of working mothers essential physical care and protection during the hours when their mothers are employed. But the nursery school affords many other benefits, too. Let us consider some of them briefly:

It provides an environment in which the young child can be happy and grow at his own rate of development.

It promotes and helps maintain physical health and vigor by providing daily health inspection, balanced diet, rest and sleeping periods, outdoor and indoor play.

It provides experiences with music, art and constructive materials, stories and pictures, plants and pets.

It provides the child with play materials which give him opportunities to make things, to use his imagination, to mold things to his own purposes, to reason out solutions to problems.

It provides the child with opportunities for sharing responsibilities, for taking turns, for standing up for his own rights, for recognizing the rights of others, for giving and receiving help, for getting along with people who are of the same age and older, for giving and receiving warm affection.

The nursery school develops the child along all lines; helps him to become more skillful in the use of his body; to learn about the world about him and how to use this knowledge; to understand people (both grown-ups and children) and to work with them; to acquire keener appreciations of color, form, harmony, grace; to develop more helpful attitudes; and to direct his own emotions.

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What does the nursery school do for parents who work outside the home?

The nursery school offers working mothers peace of mind concerning their children - a well-nigh priceless boon. Moreover, active home-school cooperation is one of the basic principles of the nursery school. Parents with free time during the day are urged to visit the nursery school and to participate in the program. All are encouraged to make suggestions, to report significant successes, events, and emotional upsets in the child's life. Individual parent conferences, both planned and unplanned, are frequent. When mothers and fathers are busy all day in war plants, arrangements may be made for group meetings or individual conferences in the evening or at other times when they are free. Thus parents have a chance to discuss their problems with other parents and with the nursery school staff. The strength that results from all this cooperative thinking and working together by parents and school staff leads powerfully and surely toward a better life for the young child.

How many children are usually included in a nursery school group?

Usually about 20 or 25 children are in a nursery school group. Under the program of extended school services, however, it may prove necessary to enroll up to 30 children in a given group, provided adequate indoor and outdoor space and qualified staff members are available.

How large a staff is needed for a group of 25 or 30 children?

In the regular nursery school, in session from 9 a.m. to 4 p.m., the ratio of professionally trained staff members to children enrolled has usually been 1 adult to 10 or 12 children, provided there are very few or no 2-year-olds in the group. Otherwise, the standard ratio is 1 adult to 8 or 10 children.

For the extended all-day nursery school operating from early morning until evening, this standard will need some adjustment in order to prevent too long a working day for any member of the staff. For a group of 25 to 30 children enrolled in a nursery school for children of working mothers, it would be desirable that the staff include the following persons:

1 professionally trained teacher in charge.
2 trained assistant teachers.
Volunteers as needed (possibly 4 to 6).
1 cook (part-time or full-time depending upon the length of the nursery school day).

Volunteers in the program can be expected to serve only a few hours each day, or possibly only on 2 or 3 days each week. Hence a relatively large number should be on call. They may be qualified adults interested in giving community service or high school students who have had a course in child care. The service of nurse and physician may in some cases also be secured on a volunteer basis; in other cases they may be drawn from the regular school or community health staff or be provided through a supplementary staff. The cook may need to be employed on a paid basis. The daily schedule of all members of the staff should be so arranged that the children will be adequately supervised at all times.

What is the first step in determining the extent to which children of working mothers need care in the community?

If the superintendent believes that the problem exists in his community, he will wish first of all to get other persons and agencies concerned about it. A group of interested persons may constitute themselves a planning committee to sponsor the project. This committee should include parents as well as school people, workers in public and private business, representatives of industries (both labor and management), and professional and civic groups. Success will depend on drawing together all the interested organizations, although the schools will need to take a major responsibility in developing and carrying on the program.

What groups in the community are likely to be interested in nursery schools for children of working mothers?

The following agencies, in addition to the schools and teacher groups, may be expected to be concerned about the needs of children:

Defense council
Council of social agencies
Department of public welfare
Board of health
Employment service
Family welfare organizations
Children's agencies
Church groups
Parent-teacher associations
Recreational agencies
Men's and women's service organizations
Labor groups
Farm organizations

What procedure may be used in locating the children needing care?

The planning group will need something more than a conjecture as to the need for a nursery school. It will need to find out how many mothers employed or expecting to be employed have children of nursery school and kindergarten age. To do this, it will need to conduct a survey. There are several ways in which this can be done. The survey may be conducted through the schools, as described in the leaflet "All-Day School Programs for Children of Working Mothers," 1/ but in that case mothers who do not have children of school age will be missed.

Another possible procedure is to conduct a house-to-house canvass. Or perhaps, through the manager of the personnel office of the industrial plant, a meeting of the women employed in the plant can be arranged, at which the purpose of the survey may be explained and information secured. Each of these procedures has its limitations and a combination of two or more of them would reap the best results. In interviewing mothers of young children, a form such as the one on pages 5 and 6 can be filled out.

1/ Leaflet No. 2 of this series, available through the Office of Education.

Many communities have found it helpful to make a spot map of the areas in which the children live, together with their ages. On this map should be indicated also the existing community facilities that can be drawn upon. This procedure will help to determine where the nursery school should be located, what hours it should be in session, how children may be grouped, and whether transportation will need to be arranged. More detailed information concerning the home situation of the children and the problems faced by parents in making decisions concerning their children's care should also be secured as needed.

What facilities are already available in the community for the care of young children of working mothers?

The planning group will need to make a thorough going survey of resources already available in the community, for it will want to build on these. The expected as well as the present needs of the community for nursery schools should be taken into consideration. These expected needs are dependent on the possible establishment of new defense industries, upon the expansion of existing industries, and upon changes in policies regarding the employment of women.

Space and equipment may be found in school buildings, playgrounds, clubrooms, community centers, housing projects, churches, and other public buildings. Are there kindergartens and nursery schools which now are in session half days but whose staff could under adjusted arrangements carry on a full-day program and serve the necessary meals? Is there any existing nursery school whose staff is capable of handling more children if given the needed equipment and help? All existing services and programs in the community should be studied to determine if they can be adapted or expanded.

In what type of place should the nursery school be housed?

Nursery schools have been housed in a variety of places — schools, dwellings, churches, and social centers. Combining as it does many of the functions of both the school and the home, the nursery school takes on some of the characteristics of each. Every effort is made to insure a sunny, cheerful, homelike atmosphere. The first floor of the school building constitutes one of the best locations to be found. First consideration should, of course, be given to a location accessible to the children's homes.

The nursery school must provide indoor space for active play, rest, health inspection, and exclusion in an isolation room for the child who is ill. In general about 35 square feet of floor space should be allowed per child, exclusive of bathrooms, cloakrooms, halls, kitchen, and storage space. Separate rooms for eating, sleeping, and playing are desirable, but experience has shown that it is possible to conduct a nursery school in a single large room, plus a well-equipped kitchen, isolation room, toilet, and locker space. Because young children so often sit or kneel on the floor during their play, it is necessary to have a floor that is warm, free from drafts, and easily cleaned.

If only one room is available, the use of alcoves or screens will allow better provisions for the activities of small groups. Areas should be assigned at appropriate times for eating, resting, playing at housekeeping, block play, table play, and book enjoyment.

NURSERY SCHOOLS FOR CHILDREN OF WORKING MOTHERS

Inquiry Form for Use with Parents of Young Children 2/

Many women who are working in this community find it difficult to make satisfactory arrangements for the care of their young children. The schools want to help with this problem. But we must first obtain information about the numbers of young children of women who are now working and of women who would like to enter employment. We must also secure the names of women who are not working and do not intend to work for wages, but who would offer to assist with the nursery school program for children of working mothers. To help provide this information, will you answer the questions in the following inquiry which apply to you?

---

1. Are you employed outside your home? Yes_____ No_____

   If you are not now employed outside your home, would you go to work if you could make satisfactory arrangements for the care of your children? Yes_____ No_____

   If you are not now employed and do not intend to enter employment, would you volunteer your services to help care for the children of women who are employed outside the home? Yes_____ No_____

   If so, please check the types of work for which you are fitted:

Supervised play	_____	Housekeeping	_____
Storytelling	_____	Nature activities	_____
Rhythms	_____	Cooking	_____
Music	_____	Other	_____

1/ This form is an adaptation of the one proposed in Leaflet No. 2 for use through the schools.

2. If you are NOW EMPLOYED OUTSIDE YOUR HOME OR WOULD LIKE TO BE EMPLOYED, please give the following information:

How many children do you have who are below school age? _____

Please give the following information about each one of them:

Name	Age (Years)	Sex Boy	Sex Girl

For what hours do you need to have the schools provide a nursery school or kindergarten for your children 2, 3, 4, or 5 years of age? _____

3. If you are NOW EMPLOYED OUTSIDE THE HOME, please give the following information:

What is the name of your employer, or the firm for which you work? _____

What are your working hours, including the time needed to get to and from work? From_____To_____

Who takes care of your children while you are away from home?

Father	_____	Girl under 16	_____
Older child in family	_____	Woman	_____
Relative (Who?)	_____	Other arrangements	_____
Neighbor	_____	_____	

How much does the care of your children cost you by the week? $_____

Are you satisfied with the present arrangements? _____

4. What is the present occupation of your husband? _____

What is the name of his employer, or the firm for which he works? _____

What are his working hours? From_____To_____

_____
(Name)

_____
(Address)

Playrooms, sleeping rooms, and the playground should all be easily accessible to toilet facilities. Although small-sized toilets and wash bowls are desirable, standard fixtures can be adapted to the use of the small child by constructing a low platform (4 or 5 inches from the floor) in front of the toilet, and steps of suitable height in front of the wash bowls. According to recognized standards, a nursery school needs one wash bowl and one toilet for every 8 to 10 children.

What kind of a playground does the nursery school need?

Since young children should engage in active outdoor play whenever possible, some 60 to 100 square feet of playground space per child should be provided. A fence is essential in city areas, and in all situations it pays good dividends in terms of security and greater freedom for children and ease of supervision for teachers.

Playgrounds should be well-drained and free from dampness, and should have a maximum of sunlight, together with some shady stretches. Grass is probably the most satisfactory surface. Growing trees and plants will provide vital nature experiences. There should be a cement walk or wooden platform for pulling wagons, riding tricycles and kiddycars, pushing trucks, or shoving engines--all activities the little child delights in. The playground should if possible be directly accessible from the play or locker room.

What kind of a program does the nursery school have?

Many nursery schools have been operating on a half-day schedule. A typical all-day school has in the past been in session from 9 in the morning until 4 in the afternoon. Under present wartime conditions, however, the nursery school day for children of working mothers may need to begin as early as 7 or 8 o'clock in the morning and may continue until late in the day, possibly until 6 o'clock in the evening. Time of arrival and departure will depend upon the working hours of the mother. Since the school may have the supervision of the child during most of his waking hours, it must in such cases take the responsibility for providing a well-balanced program of activity and rest, of free play and routines, companionship and solitary play, and a well-balanced diet. No schedule for young children can be followed exactly every day. The program must always be flexible enough to allow for unexpected conditions and unforeseen enthusiasms on the part of the children. A general schedule of activities for an all-day nursery school under the program of extended school services will probably follow a plan such as this:

7:00 - 9:00	Arrival; health inspection; toilet; drink of water, or breakfast according to child's needs; and indoor play
9:00 - 10:45	Outdoor play; midmorning water, orange juice, cod liver oil
10:45 - 11:30	Toilet; rest; quiet indoor play; preparation for dinner
11:30 - 12:30	Dinner; preparation for naps
12:30 - 2:30 or 3:00	Naps; indoor play (for older children who wake up early)

2:30 - 3:15 Dressing; toilet; afternoon fruit juice or milk

3:15 - 4:30 Outdoor play (length of period to vary with climate)

4:30 - 6:00 Indoor play; music; stories; supper (according to child's needs); preparation for departure; departure

The daily program of the nursery school is always planned with reference to the age, ability, and the interests of the children who attend. Two-year-olds will need more time for the processes of toileting and dressing than will older children. Four-year-olds will be more interested than younger children in music, conversation, and story groups and so may be given more or longer periods of this kind.

If the nursery school is a very small one, the children may not be divided into definite groups; but within a given group, different activities will be planned for different ages. If there are several nursery school groups, each may be limited to a given age. The programs will then vary accordingly.

Perhaps nothing affects the schedule as much as do climate and seasonal changes. In the warmer sections of the country, many nursery school activities may be carried on out of doors for the greater part of the year. In the north and central sections, the schedule will vary to a greater extent from one season to another. In all sections the nursery school must adapt its program to rainy weather foggy days, windy days, etc.

What are the minimum essentials for equipment?

For playing, eating, and sleeping, the nursery school provides equipment adapted to the age and development of the child, making self-help possible: cots, tables, and chairs are child size, low cupboards and lockers are provided for toys and the belongings of the children; pictures are hung at the level of the child's eyes; hooks for wraps are of child height; small pitchers, cups, plates, and silverware are provided; piano and/or phonograph are, of course, necessary for musical experiences.

In selecting play equipment the following standards should be used:

It should stimulate a child to do something actively.

It should possess the possibility of being used in many different ways.

It should be suited to the age, interests, and abilities of the children using it.

It should be sturdy and safe.

Play equipment which has proved interesting to young children include the following:

Sand box and sand toys (sifters, pails, trowels, shovels, spoons, funnels, jelly molds, pans).

Clay, crayons, paints (calcimine), brushes, large sheet of newsprint, easels, blunt-end scissors.

Blocks (2" by 4" make excellent blocks in 4, 8, 16, and 24 inch lengths. All blocks should be well sandpapered to avoid splintering. Plenty of them should be at hand).

Doll-corner equipment (dolls, sturdy bed, doll buggy, doll clothes, dishes, table, chairs, rocking chair for the child, ironing board and iron, clothes line, and clothes pins).

Small mobile toys (trucks, trains, wagons, etc.)

Work bench (medium sized hammer and saw, vise, nails with large flat heads, odds and ends of soft lumber).

Story-book cupboard with books available for free choice.

Equipment for active play (boards, packing boxes, teeter-totter, saw horses, ladders, swings, slide, horizontal bars, rings, tricycles, peddle variety of kiddy cars, wagons, simple toy trains, and automobiles).

Materials like these give young children an opportunity to make something, to manipulate, to mold things to their own purposes. They are on the "must" list for any nursery school. A great many of them can be made by school carpenters, high-school woodworking classes, or fathers who have had some experience in working with wood.

Does the nursery school need professionally trained teachers?

Trained teachers are essential. They should have specialized training in the field of nursery-school-kindergarten education or child development or both. They should also have had some nursery school, kindergarten, or other practical experience in guiding young children.

In addition to her teaching duties, the nursery school teacher in charge will need to assume responsibilities for supervision, planning meals, household management, parent education, training volunteers, and daily health inspection. She will always be responsible for essential record keeping. Moreover she needs to know what is going on in the world in more than verbal terms. Plants, animals, rocks, music, buildings, transportation -- all of these need to be a part of the young child's world. The teacher must have the ability to share such interests with children.

How can volunteer helpers be used in the nursery school?

Volunteers can help in many of the routine activities of the nursery school. They can take off and put on wraps, take the children to the toilet, assist at meal time, serve midmorning and midafternoon lunch, and make preparations for nap-time. They can often assist with play groups, story telling, musical experiences, and excursions.

Such helpers will need preliminary training in child care, as well as close guidance after becoming part of the nursery school staff. In communities where there are no organized child-care classes, this preliminary training will need to be given by the nursery school teacher. A volunteer should not be assigned responsibility for any of the activities of the children, no matter how routine, until she has worked in the nursery school for some time and has acquired a real understanding of the young child and his needs. The operating agency should arrange for obtaining volunteers through the local Civilian Defense Volunteer Office.

What factors influence the cost of the nursery school?

The initial cost of organization as well as maintenance costs will vary widely. The range of budgetary requirements under various conditions is so great that no one set of figures is representative at the present time. In many cases community-sponsored nursery schools may have the use of all or part of a desirable building, rent free. Needed equipment and supplies may be donated by individuals or organizations. Fathers or students in high-school woodworking classes may build all or part of the equipment. The amount allowed for food depends upon local costs, upon the length of the school day, and upon the number of meals for which the nursery school assumes responsibility. Some nursery schools leave the responsibility for cod liver oil to the parents; others assume it as part of the services of the nursery school. Even the amount allowed for salaries will vary with local conditions, the prevailing salary scale, the size of the staff, and the number of volunteer helpers available.

With full consideration of all these variable factors, it is estimated that the aggregate expenditure per year will range from $125 to $250 per child, depending upon existing community facilities and local living costs. Information gathered from various parts of the country shows that parents are paying nursery school fees ranging from 25 cents to $1 per day, thus reducing considerably the actual cost of the program to the community. One school system, preparing an estimated cost sheet for setting up services to care for young children of working mothers, was able to make fees plus contributions carry the total cost of operation. In another community those preparing a plan of nursery school services, without considering contributions but including the item of fees, estimated the cost at approximately $80 per child. When one considers that the services rendered by the nursery school are not only to children but to parents and that they involve items not ordinarily covered in the regular school budget, including the close supervision demanded by young children, this figure does not appear unreasonable.

What are some sources of financial aid?

Funds for providing the program may be available from State and local agencies responsible for education, welfare, and recreation, and through such agencies as defense councils, community chests, civic groups, churches, private contributors, including employers and the parents themselves. Since the program is set up to meet the needs of parents earning increased wages, it may safely be assumed that at least a part of the program can be financed through fees from parents, the amount of which will be determined on the basis of local conditions and practices. Information regarding Federal financial participation will be made available through administrative memoranda issued from time to time by the Office of Education.

A SUMMARY OF THE

"HANDBOOK ON WAR MANPOWER COMMISSION"

Major Subdivisions of Summary

Office of Executive Services

Bureau of Placement

Bureau of Manpower Utilization

Bureau of Training

Field Service

Reports and Analysis Service

Committee on Essential Activities

OFFICE OF EXECUTIVE SERVICES

The staff of the Office of Executive Services assists the Chairman and the Deputy Chairman and Executive Director by handling special assignments, coordinating and supervising Congressional relationships, both departmental and field; dealing with individuals or groups who contact the Chairman's or the Deputy Chairman and Executive Director's offices who cannot readily be referred to someone in the Commission; and supervising and coordinating the work of the War Manpower Commission's Committee on Deferment.

BUREAU OF PLACEMENT

I. Over-all Responsibility of the Bureau of Placement. The over-all responsibility of the Bureau is to provide technical advice and assistance to the WMC Deputy Executive Director, chiefly in connection with the programs and operation of the USES public employment offices and with WMC programs for the allocation of workers and the stabilization of employment. The Bureau does not directly administer the USES system but performs a "staff" function by assisting the Deputy Executive Director to issue instructions and suggestions to operating personnel in the field.

Many of the present responsibilities of the Bureau were met in the past by variously named administrative units of the USES when the USES was under the Department of Labor and later under the Social Security Board. But in December 1942, about 3 months after the USES became a part of the WMC, the responsibilities were centered in a newly established unit named the Bureau of Placement.

II. Organization and Functions of the Bureau of Placement. There follows an outline showing the major functions performed in the various subdivisions of the Bureau. The Divisions have been classified under the following three major functions: (A) Providing Manpower; (B) Providing Special Services; (C) Operating USES offices.

A. Providing Manpower

1. Industrial Allocations Division. This Division is primarily concerned with meeting the manpower requirements of important war industries or plants whose manpower problems cannot be solved in one locality.

2. Rural Industries Division. This Division is primarily concerned with meeting the manpower requirements for those industries chiefly characterized by high seasonal employment and generally located in rural areas, such as food processing, and preservation, etc. The Division is also responsible for the coordination of the War Food Administration's farm labor program with the WMC program and for the utilization of prisoner-of-war labor in private employment.

3. Foreign Labor Section. The activities of this Section relate to the employment within the U.S.A. of labor imported from other countries, except that Rural Industries handles negotiations connected with the employment of Canadian woodsmen in northeastern United States. This Section is not a part of any Division but reports directly to an Assistant Director of the Bureau of Placement. No particular functions are assigned exclusively to a particular staff member—although one person is almost exclusively responsible for health and welfare activities. As a flexible pattern, a different staff member is primarily responsible for all functions involving a certain country or group of countries.

4. Procurement and Assignment Service. This Service (same level as Division) is concerned with manpower problems in the field of medicine—including physicians, dentists, veterinarians, sanitary engineers and nurses. Field activities are not carried on through USES offices but through local volunteer committees which report to P & A Service Chairmen who serve without compensation.

5. National Roster of Scientific and Specialized Personnel. This unit (same level as a Division) registers professional and scientific personnel, and provides for the most effective wartime utilization of this Nation's scientifically and professionally trained citizens through effective recruitment, placement and utilization.

6. U. S. Civil Service Commission Liaison. A designated employee of the U. S. Civil Service Commission maintains continuous liaison relations with the Director of the Bureau of Placement to insure that governmental hiring conforms to WMC policies.

B. Providing Special Services

1. Veterans' Employment Service Division. This Division devotes itself to providing effective employment service to veterans and to handicapped workers

2. Minority Groups Service. This Service (same level as Division) is concerned with matters pertaining to the employment of workers in minority groups.

C. Operating USES Offices

1. Employment Office Service Division. This Division is primarily concerned with all matters which affect operations in local offices of the USES, and with WMC programs for the allocation of workers and the stabilization of employment. The following sections carry out these functions: Program Section; Installation Section; Evaluation Section.

III. Special War Programs.

1. Stabilization Program. Through this program, USES offices minimize the movement of certain workers from one essential job to another or

from essential to less essential establishments. Workers subject to the program, where recent employment has been in essential establishments, must obtain from their employers or from the USES a "Statement of Availability" in order to be referred by the USES or hired by other employers without delay. Lacking such a statement of availability, workers should not be referred or hired for a period of 60 days.

2. Priority Referral Program. Through this program, USES offices direct workers to jobs in the order of the relative importance of jobs. Employers are assigned employment "ceilings." This program requires that workers should be referred first to the most urgent jobs by means of "priority referral." Each of the most urgent orders is assigned a priority designation or classification. Workers covered by ceilings and priority referral vary between areas and may include all workers, male workers only, or special groups of workers specified by sex, age and occupation.

3. "Streamlining" Program. Through this program, USES offices have a plan of wartime operations whereby delay in referring applicants to jobs can be eliminated and staff time can be concentrated on activities most productive. Most workers are interviewed at counters, rather than at desks, application cards are not filled out for persons immediately referred, and other activities are eliminated or "streamlined."

The Bureau of Placement has developed programs, procedures, and training aids not only for the three purposes outlined above, but for other operations of the WMC.

BUREAU OF MANPOWER UTILIZATION

I. Need for Better Manpower Utilization. By the end of 1942, mobilization of national manpower was moving toward completion but waste of manpower including excessive labor turnover, high occurrence of absenteeism among workers, labor hoarding, low morale, wasted production effort and many other factors was adding to the problem of full production. Some part of the causes of these conditions had their origin in the upheaval of war but much of the manpower waste grew out of conditions which could be analyzed and to some extent adjusted.

II. Causes of Manpower Waste. Two major areas of difficulty appeared to be subject to analysis and the application of remedies were: (A) plant conditions, including production procedures and personnel practices, and (B) out-of-plant conditions, such as housing, transportation, restaurant, health, shopping, child care and other community facilities. Such conditions called for the creation of a service, which would "assist labor and management in a mutual search to increase the effectiveness of human effort..." The Bureau of Manpower Utilization was created and called upon "to promote the most effective mobilization and utilization of the national manpower and to eliminate so far as possible waste of manpower..."

III. Two Phases of Manpower Utilization. To carry out this assignment, the Bureau of Manpower Utilization determined upon two phases of action: (1) to have all available manpower employed and (2) to have all employed manpower used effectively.

IV. Method of Operation. The Bureau uses six major functional approaches to provide assistance in the "how" of manpower utilization. These approaches form the basis for the organizational structure of the Bureau.

(A) Division of Industrial Consultation. Through some 500 field utilization consultants, skilled in industrial engineering and personnel management, the Bureau provides a utilization service to industry. Plants are surveyed to diagnose manpower utilization problems. Services of consultants are also used in surveying industries on a Nation-wide basis, to help determine employment ceilings (total number of workers a plant will be permitted to employ), and to help coordinate all resources of industry, labor, and civic groups in community-wide efforts to relieve local labor stringencies.

(B) Industry Associations Committee. A program of self-help through trade associations has been stimulated. More than 750 industries divided into 12 over-all groups, each represented by a national leader in the industry as a member of the Industry Associations Committee, are participating in the program.

Case histories from member companies are processed by the appropriate trade associations and a report of good manpower practices for the industry is drawn up and sent to the various members. Each member then is able to use the good practices that have been applied by other operators in the same line of business.

(C) Labor Relations Advisers. In the Bureau of Manpower Utilization a group of Labor Relations Advisers has been active in promoting the cooperation of organized labor toward effective utilization of workers. Support for this undertaking has been pledged by all of the major CIO and AFL International Unions. Through these organizations it is possible to promote industry-wide efforts to improve utilization practices in plants employing about 13 million of the Nation's union members. The United Auto Workers, the Nation's largest union, has set up special manpower utilization committees in many of its largest local unions. The UAW is also devoting a section of its handbook for local union officials to the needs and techniques of utilization.

The Bureau has recently entered into joint operations with the war production drive to secure the aid of the Nation's 4,300 labor-management committees in plants employing a total of nearly 7 million workers.

(D) Division of Special Service.

1. Wages and Hours Section. This Section is concerned with the wages paid in industry and the hours of work in industry. Executive

Order No. 9301 authorized the minimum wartime workweek of 48 hours. The 48 hour workweek is extended primarily by area, depending upon the labor market conditions. Utilization consultants in most areas have primarily responsibility for carrying out the minimum wartime workweek regulation, wherever it has been invoked. They assist plants in establishing the best possible shift schedule. Whenever an obsolete wage structure or wage inequity is primarily responsible for interfering with essential production, the Wages and Hours Section will help the establishment justify its application for an increase in wages to the NWLB. Normally, a utilization survey is made to prove that only an adjustment in wages will enable the establishment to recruit and keep sufficient manpower to meet its production schedules. Employers are also frequently provided with an analysis of the jobs in their plants as necessary supporting material for their War Labor Board applications.

2. War Industries Employee Service Section. This Section is concerned with the in-plant and community facilities which affect the workers in war production, such as transportation, child care, health care, shopping and governmental services, recreation, and education. Utilization consultants assist in securing plant and community services which affect the productivity and retention of workers, working with management and with Federal, State or local agencies.

(E) Division of Government Agencies. Better utilization of Federal employees thru the offices of the Civil Service Commission is promoted.

(F) Division of Occupational Analysis. The Bureau of Manpower Utilization makes wide use of specialized tools and services developed through occupational analysis, including the Dictionary of Occupational Titles, job descriptions, job family studies, apptitude and trade tests, analyses of physical demands of jobs and physical capabilities of workers. Special Aids For the Placement of Army and Navy Personnel in Civilian Jobs are being published.

(G) Relation of the Bureau to other WMC Programs. The function of promoting effective manpower utilization is closely related to all of the other functions of the WMC. Utilization consultants exchange information, publications and materials with representatives of the WMC Training Division. Plans for plant surveys are made with the assistance of training representatives and the training aspects of utilization surveys in plants are handled by the training representatives.

Cooperation and coordination of activities with the Bureau of Placement is another necessary part of the manpower utilization function. In the establishment of employment ceilings and in the priority referral program, surveys of plants affected must be made to determine needs, to prove full utilization of currently employed workers, and to determine other factors which might be necessary to the determinations on employment ceilings and priority referrals. The knowledge of utilization consultants and of occupational analysts are utilized.

BUREAU OF TRAINING

I. Functions. This Bureau has the responsibility for training workers for employment in war industries and agriculture so that they may reach full production and earning power in the shortest possible time. This includes pre-employment training, supplementary training for the up-grading of war workers and training for more efficient leadership among supervisors and foremen.

II. Program. The training program is executed throughout the country by five training agencies that are organized on a national basis and that operate in every State. The five training agencies are: Apprentice-Training Service (ATS); Training Within Industry Service (TWI); Vocational Training for War Production Workers (VTWPW); Engineering, Science, and Management War Training (ESMWT); and Food Production War Training (FPWT). The type of training service that the agencies render may be indicated briefly as follows:

1. Apprentice-Training Service advises industrial companies on over-all training problems and promotes training through apprenticeship to develop all-round skilled workers, and other programs to develop workers of more limited skill.

2. Training Within Industry Service promotes the training of supervisory personnel through job instruction, job methods, job relations, and program development training in war industries and essential activities.

3. Vocational Training for War Production Workers, in cooperation with State and local boards of vocational education, provides occupational training in courses of less than college grade to workers in war production industries.

4. Food Production War Training, in cooperation with State and local boards of vocational education, provides training of less than college grade in food production and conservation, mechanics, farm machinery repairs, and farm labor training.

5. Engineering, Science and Management War Training, in cooperation with colleges and universities, provides short courses of college grade designed to meet the shortages of engineers, chemists, physicists and production supervisors in essential fields.

In addition, a Visual Aids Service provides motion pictures, film strips, and instructor's manuals as aids in the war training program. The activities of the five training agencies and one training service are coordinated into a unified war manpower training program.

III. Organization.

In the administration of the Bureau, the staff consists of the Director and his aids, and two divisions—the Technical Services

Division, which is in effect the field operating arm of the Bureau, and the Management Division which handles the business management function and liaison activities with other Bureaus and agencies at headquarters.

The training program in the field operates in the 12 War Manpower Commission regions with a regional chief of training on the staff of each regional director. There is a State WMC director in each State and a State Chief of Training in most of them. There are more than 150 WMC areas in each of which there is an Area Director and an Area Chief of Training in many of them. The Chief of Training, as a representative of the Bureau of Training and the War Manpower Commission regional office, coordinates the training programs of the five training agencies.

This coordination is effected, to a considerable extent, by Training Councils. The Councils operate in the same manner at all levels--national, regional, State and Area. Their membership includes the representatives of the training agencies with the Chief of Training as Chairman, and representatives of other Government agencies, and sometimes of industry. At their meetings training problems are discussed and the best method of cooperative action to achieve the desired result is planned.

FIELD SERVICE

I. As an integral part of the Office of the Executive Director of the War Manpower Commission, Field Service is under the direction and supervision of one of the Assistant Executive Directors. The functions of Field Service logically fall into two categories (a) those functions dealing primarily with field activities and; (b) those functions touching, dealing, in the main, with National Headquarters activities. These functions are roughly divided into two groups and enumerated as follows:

(A) Field Activities

1. Field Service is primarily responsible for developing the necessary contacts to keep the various Bureaus at Washington levels currently aware of problems which are occurring in the field in carrying out already developed policy and programs, and for channeling suggestions, experimental programs and new developments in the field to appropriate Bureaus for their consideration in the amendment of policy. Field Service in conjunction with other Bureaus, keeps the Regional Manpower Directors informed as to accepted interpretations of WMC policies, programs and instructions. Field Service is responsible for the operation of effective manpower programs aimed at the stabilization of employment, prevention of turnover, priority of referral, absenteeism, compliance with WMC regulations, utilization of labor, etc., by the various industrial areas throughout the country; also for participation in the development of, and responsibility for, operation of effective recruiting and training programs. The Field Service staff represents the Executive Director in the field in connection with contacts with Regional and Area Directors, and is

generally authorized to act for the Executive Director in the resolution of any problems which may interfere with the successful operation of the manpower program in the field.

2. Periodically, the Field Service Staff makes an evaluation of the application of manpower programs in the field in order to determine the extent to which national programs and policies are actually being carried out.

(B) National Headquarters Activities. All correspondence received from regional offices which represents major problems or other inquiries to which a reply is necessary is channeled through Field Service.

Field Service reviews outgoing correspondence to the regional offices for the purpose of eliminating duplication or misinformation. Field Service further serves as the headquarters focal point through which all follow-up action to the field is handled. All travel to the field from headquarters is cleared through Field Service.

II. Organization of Field Service. The organization of Field Service provides for four Field Representatives who are assigned the responsibility of covering the 12 regions of the War Manpower Commission. Each of these individuals is responsible for maintaining headquarters relationship in three regions.

Two members of the Field Service organization have been designated as Special Representatives. These individuals have not been assigned any specific territories, but rather are used on details which require immediate action.

A third unit within Field Service is composed of three Regional Representatives, and a fourth staff member who is responsible for handling procedure control at the headquarters level.

REPORTS AND ANALYSIS SERVICE

The Reports and Analysis Service is assigned the responsibility of making accurate determination of manpower needs and supply. The reports on local office activities and employer labor needs have been used as a basis for this information. The reports come to the Reports Processing Section of the Reports Division, where they are controlled, edited, and compiled. Special communications to the local offices regarding the validity, accuracy, delinquency and necessary reconciliation are prepared.

The Analysis Division, composed of Area, Industry, Special Studies, and Foreign Labor Market Sections, uses this data. The War Manpower Commission labor adequacy lists (representing the classification of areas) is prepared each month, classifying the labor market areas into Groups I, II, III, and IV, according to the adequacy of the labor supply. The industry tabulations of employer labor needs are analyzed by the Industry

Section and made available to other branches of the Commission and other Government agencies. The Commission's manpower estimates are prepared periodically and represent a national manpower budget, indicating the manpower requirements of the armed forces, war industries, and civilian employment, setting forth the labor supply available to meet these requirements. This work is carried on in the Manpower Estimates Section of the Reports Division. Special estimates are also made of migration, hires, new entrants into the labor force, labor force withdrawals, and other data related to the labor force, its size and composition. In the Special Studies Section special analyses are made of the labor market experience, such as employment of women, youth, etc., which are not directed to specific areas or specific industries. The technical publications of the Commission, Manpower Review and Labor Market, are edited and published in this Special Studies Section. The work of the Foreign Labor Market Section was especially significant as we were entering the emergency war program. It was important at that time that we collect and analyze information on the experience of foreign countries in the control and management of the labor market for the solution of wartime and postwar manpower problems, in order to avoid mistakes made elsewhere.

All of the report forms used in the local offices are reviewed in the Statistical Coordination and Procedures Section.

COMMITTEE ON ESSENTIAL ACTIVITIES

I. The National List. Shortly after the establishment of the WMC it became evident that in order to achieve a balance in the allocation of manpower between the segments of our wartime economy, a determination of the activities essential to the war effort was necessary. The USES was instructed by the WMC, after consultation with the War Production Board, War and Navy Departments, Department of Agriculture, and such other agencies which it may deem appropriate, to prepare and keep current (a) a list of essential activities; (b) a list of essential occupations; and (c) a list of critical war occupations.

A list of essential activities was approved by the WMC in July 1942, and was transmitted to the local boards of the Selective Service System and to the local USES offices. The Chairman of the WMC appointed an Interdepartmental Committee on Essential Activities. This committee was authorized to make continuous review of the activities and occupations classified as essential and to make recommendations as to the contents and use of the list. It consisted of representatives of the WMC, Selective Service System, War and Navy Departments, War Production Board and the Department of Agriculture. The staff of the WMC has made its services available to the committee and to the agencies involved. During the summer of 1944, the Office of Civilian Requirements was given representation on the committee, making a total membership of seven.

The Committee has followed the practice of requesting the participation of representatives of various governmental agencies in the consideration of activities and occupations in which the respective

agencies have a special responsibility. Representation of industry and trade associations and other organizations have been requested to submit recommendations in writing, although members of the committee and its technical staff have been available at all times for conferences. Provision has also been made for hearings before a subcommittee, so that representatives may supplement and elaborate upon their recommendations.

II. Determination of the Essentiality of an Establishment. Although the Committee on Essential Activities determines the essentiality of industries, activities, and services, the area manpower director of the WMC and the local office manager of the USES are responsible for determining whether an establishment is engaged in an essential activity. In general, an establishment is regarded as essential if it is engaged in an activity included on the list; if approximately 75 percent of its activities is devoted to production of items included on the essential list; or if the product or service is being directed to meet war needs or minimum civilian requirements under wartime conditions. About 24,000,000 workers are employed in establishments encompassed by the List of Essential Activities.

III. Locally Needed Activities. At the time the List of Essential Activities was originally approved no provision was made for locally needed activities. It was thought that the essential activities list would be sufficient in the classification of activities related to war production. It was later realized, however, that facilities for serving the minimum needs of the community were extremely important to the maintenance of working efficiency. It was felt that when the area manpower director found that a trade or service primarily local in character was required to maintain services necessary to the health, welfare and safety of the area, or services necessary for the conduct of an essential activity, and that it could not meet the demand for its services without special protection, the area director might designate such an activity as "locally needed."

IV. List of Critical Occupations. Under General Order No. 10, the List of Critical Occupations was approved by the Commission on August 14, 1943. This list had great significance in that registrants in these occupations received deferment from the local boards of the Selective Service System, and workers in these occupations were subject to controlled referral by the USES. During the winter of 1944 the military authorities were convinced of the need for young men in the infantry and other branches of the military service. A policy was adopted by May 12, which provided for a swing from the occupational basis to the age and activity basis. All occupational deferments for men under the age of 26 were canceled, except those in some critical activities and programs recommended by the Inter-Agency Committee on Occupational Deferment, and only a small number received deferment through these devices. The Selective Service System in the consideration of deferments of registrants beyond the age of 25 uses the List of Essential Activities as a guide.

A WMC directive has just been issued which rescinds the list of critical occupations. The manpower priority referral program gives area WMC Directors control over referral of all males regardless of occupation. Therefore, it is not necessary to have a special critical list.

LETTERS STATING THAT WOMEN ARE BEING TRAINED FOR DEFENSE WORK.

File 918.

349	December 11, 1941	Mrs. Margaret C. Ells, Assistant Principal, Girls' Division, Trade School, Springfield, Mass.
219	December 31, 1941	G. H. Parkes, Director, Williamsport Technical Institute 1046 West Third St., Williamsport, Pa.
302	January 6, 1942	Mr. Forrest H. Kirkpatrick, Personnel Dir., RCA Manufacturing Company, Inc., 501 North LaSalle St., Indianapolis, Ind.
	January 6, 1942	Mr. John H. Wallace, Supervising Principal, Lynbrook State School of Aviation, 190 Earle Avenue, Lynbrook, N. Y.
	January 7, 1942	Mr. Thomas L. Lee, General Manager, Rochester Products Div., General Motors Corporation, Rochester, New York.
381	January 8, 1942	Mr. Charles F. Bauder, Director of Vocational Education, The Board of Public Education, Parkway at Twenty-First St., Philadelphia, Pa.
	January 9, 1942	Mr. Frank H. Paine, In Charge of Instruction and Supervision, Emergency Training Program for National Defense, 110 Livingston St., Brooklyn, New York.
	January 9, 1942	Willis W. Grant, Director, Rehabilitation Division, Board for Vocational Education, State Capitol, Des Moines, Iowa.
	January 12, 1942	Mr. Charles W. Sylvester, Director for Vocational Education, Department of Education, Baltimore, Maryland.
59	January 14, 1942	Mr. R. A. deDonado, Director Vocational Education, Bristol Vocational School, 309 Wood St., Bristol, Pa.
	January 15, 1942	Summary describing activities at Spartant School of Aeronautics at Tulsa, Oklahoma, and in the Trade Schools at Boston, Mass.
51	January 20, 1942.	George J. Toles, Coordinator for Industry, National Defense Training Program, Board of Education, Buffalo, N.Y.
	Mar. 5, 1942	Mr. A.S. Boynton, Bu of Voc Ed. Dept of Ed. Hartford, Conn.
125	Mar 9, 1942	Mr. John C. Wright, U.S. Office of Education Washington, D.C. In re offer of Buildings of Oklahoma college for Women, for trainin

Ethel Rendon

Progress Report of the Emergency Training Commission

Williamsport, Pa.

October 28, 1940

Good record on training - See Sheet 6 for comments

Introduction

The National Defense Training Program conducted under the auspices of the School District of the City of Williamsport and cooperating agencies, has been in operation nineteen weeks. The attached statistical tables present a picture of the essential activities now in operation and contemplated.

Cooperating Agencies

The National Defense Training Program is now operating quite smoothly. All agencies are cooperating fully. Some question has been raised by the Department of Public Instruction about the continuance of the Civilian Conservation Corps program on Saturdays but it is expected that this situation will be clarified within a few days.

The problem of accounting for supplies and securing proper reimbursement from the Department of Public Instruction for expenditures is only reasonably satisfactory. The regulations adopted by the Office of Education and the State Board for Vocational Education introduces a considerable amount of bookkeeping and uncertainty in the local program. This uncertainty seems to come chiefly from the operation of a program which is subject to regulations applying to federal programs, to state programs, and to local programs with the numerous conflicts in administrative details. We are strongly recommending to the Department of Public Instruction that every effort be made to reimburse on local districts participating in the defense training on some type of flat fee or student hour basis so as to permit greater

flexibility and less uncertainty in the matter of reimbursement.

Attitude of Learners

The attitude and attendance of the learners is excellent. Our placement records show 95% placement of those permitted to complete training and the failure of trainees after placement is less than 1%.

Problems of the Future

There is evidence that the present emergency in skilled men such as tool makers, pattern makers, draftsmen, tool designers, etc., will continue and will reach serious proportions before the end of the present war effort. Based on this evidence is the feeling that we are in for a long period of emergency production, and we believe that the young men engaged in training for these highly skilled trades will have ample opportunity to complete a long term training program before the end of the emergency. It is altogether probable, therefore, that we should begin to prepare a considerable number of young men and women for high skilled positions in industry for five or six years hence.

The most serious problem facing the defense training program, at present, is the rapid deterioration of the training equipment. Our Machine Shop, for example, has practically no equipment which is not at least ten years old and most of it is fifteen years old. The three shifts coming on top of ten years of retraining unemployed men is putting this equipment out of service rapidly. The present national defense training authorizations do not provide for replacements or even serious repairs to this equipment. New authorizations have given indication that funds will be available for the replacement of equipment, but the sum is quite small and it is altogether probable that Williamsport will obtain very little relief from this appropriation.

In this connection, it is important to note that a replacement program in Williamsport would be on the order of $100,000.

Even though funds are available for retooling the plant, at least one year would elapse before delivery and installation could be completed. There is additional danger that priority orders from essential industries will completely interfere with our purchase new equipment. For this reason, it is felt that we must in the future, look to the industry working through the Washington National Defense Commission for satisfactory training equipment.

New Authorizations

The President of the United States has just signed an appropriation measure which provides additional funds for carrying on the national defense training. We do not have information on the latest figures but I think the following allocation of funds is reasonably accurate:

1.	To continue present Vocational Education for National Defense training.	$26,000,000.00
2.	For Equipment	6,000,000.00
3.	For training of rural and other youth for National Defense	10,000,000.00
4.	For training NYA enrollees through public system of vocational education	7,500,000.00

From the above allocations it is evident that ample funds will be available to carry on the defense training for the remainder of this fiscal year and there seems to be no doubt that the public vocational education training program will continue for the duration of the emergency. We are naturally working with other agencies in an attempt to develop as much of a cooperative program of defense training centered in Williamsport as possible.

Supply of Workers

It is encouraging and alarming to note that practically all men who have received any vocational training in our schools during the past ten years have secured positions in essential industries. Employers now seem to be interested in men who have had as little as 30 hours of training as long as ten years ago. This is a partial indication that the backlog of available partly skilled workers is diminishing rapidly.

To date, the national defense training program in Williamsport seems to have kept pace with the demands of local industries. As an assurance of an adequate number of partially trained men being available in a sudden employment upswing, the School District is maintaining contact with the National Youth Administration and the Civilian Conservation Corps. Through these two agencies and the local training program for their clients, conducted by the School District, we have an opportunity to select high type youth from distant points and bring them to Williamsport for observation and training. Under normal conditions, these out-of-town youth will return to their home communities for placement, but they are available for placement in local industries if the supply of local labor is not adequate.

Mr. J. T. Shuman, personnel officer in charge of enrollment and placement, has established cooperative relations with other vocational schools so that, if necessary, we can bring to Williamsport a considerabel number of rather well-trained young men.

In the light of the foregoing, we think that the present training program can maintain the pace necessary to provide new workers for our local industries.

Notice of Special Conference by

Community Trade Association

On November 18 and 19, 1940, the Williamsport Community Trade Association, in cooperation with the Emergency Training Commission, proposes to call a meeting of the secretaries of Chambers of Commerce of Pennsylvania and other persons interested, in defense training. This meeting will begin with a dinner meeting at 6 o'clock on Monday evening. At this dinner meeting, it is expected that the Community Trade Association will invite as a guest speaker, an outstanding news analyst, or other speaker, who can give us the latest information on national defense needs. Following this dinner meeting and lecture, there will be an Open House of all defense training programs in the vocational shop building. On the following day, there will be a series of meetings on the general subject of community cooperation in national defense training.

The community Trade Association expects to invite to this conference representatives of all agencies interested in the general problem of relief, employment, training, and national defense. The members of the commission are invited to submit to the secretary the names of individuals or organizations which should receive an invitation to participate in this program.

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Statistical Tables

Table I.

Enrollment and Placement Statistics
Vocational Education for the National Defense
Williamsport, Pa.
July 1, 1940 to October 24, 1940

	No.	Percent of Total
Number dropped, quit or discharged early in course.....	49	8.38
Number in classes at present.....	249	42.56
Number placed or finding jobs in industry and holding jobs.....	285	48.72
Number losing jobs (human failure characteristics).....	2	.34
Enrollment to date.....	585	100.00

Percent of failure among those actually placed less than one percent.
Placement among those allowed to remain in classes, over 95%. 285 have been placed from VEND, but estimate that another 150 men having training in our retraining school and day school have gone into metal-working industries in last three months, total 433. Training during depression now paying more dividends. Number in VEND classes, November 1, will be close to 300.

Table II.

Companies with which Men have gone to Work from VEND Classes, and Number of Placements Vocational Education for the National Defense

Williamsport, Pa.

July 1, 1940 to October 24, 1940

Company	No.
Aviation Manufacturing Corp.....	325*
Glenn L. Martin Company.....	31
Piper Aircraft Company.....	30
American Car & Foundry Company, General Electric, Bethlehem Steel, Frankford Arsenal, etc.....	23
Radiant Steel Company, C. A. Reed Company (machine shop).....	13
Total Placement.....	422

*Includes men previously trained.

The local Vocational Department is now serving as clearing office for trained men from other centers: Lewistown, Trevorton, Selinsgrove, New Castle. This makes available the training facilities of these additional communities if the local schools cannot at any time meet the demand. About 25 men have been placed at Aviation thus far as a result of this with some 2000 hours preliminary training.

Table III.

Report of VEND Courses
Williamsport, Penna.
October 28, 1940

Code Symbol	No. of Students	No. of Teachers	Tool-Keepers	Weekly Expenses		Date Started
				Salaries	Other Expenses	
1	500	13	3	610.00	305.29	6-17
2	60	3	1	150.00	164.59	8-5
3	14	1	1	50.00	55.58	8-12
4	20	1	1	50.00	56.54	8-12
5	12	1	-	50.00	86.80	8-12
6-A	60	3	-	30.00	24.40	6-17
6-B	20	2	-	20.00	13.00	6-17
6-C	20	1	-	10.00	17.00	6-17
6-D	20	1	-	10.00	13.00	6-17
6-E	10	1	-	10.00	14.80	6-17
6-F	12	1	-	10.00	9.10	6-17
6-G	10	1	-	10.00	6.00	8-12
7	50	2	2	100.00	79.00	9-3
8	40	2	-	100.00	20.00	9-3
9	50	1	-	80.00	25.00	9-3
10	50	3	3	150.00	76.00	9-3
11	1000	2	-	180.00	------	9-9
12	50	2	-	100.00	60.00	9-9

Code Symbol	Name of Course
1	Machine Tool Operation
2	Aviation Engine Assembly and Testing
3	Electric Welding
4	Aviation Sheet Metal
5	Aircraft Welding
6-A	Machine Tool Operation (CCC)
6-B	Aviation Engine Assembly and Testing (CCC)
6-C	Factory Building Maintenance (CCC)
6-D	Auto Mechanics (CCC)
6-E	Aircraft Welding (CCC)
6-F	Electric Welding (CCC)
6-G	Aviation Sheet Metal (CCC)
7	Aviation Mechanics
8	Airport Service Training
9	*Foreman & Supervisory Training
10	Aviation Radio Service
11	Extra Shift Supervision
12	Aviation Detail & Drafting Layout

* Inactive.

Agenda

Emergency Training Commission
Williamsport, Pa.
October 28, 1940

1. Minutes of last meeting and report of progress.

2. New recommendations:

   a. Consider possible means of securing replacement equipment to keep the present program in operation for the duration of the emergency.

   b. Consider possible building facilities for the expansion of the progam.

Memo to: Miss Anderson and Miss Nienburg From: E.E.

Subject: General findings and comments on visits to trade schools and plants having defense contracts on training of women workers in Hartford, Bridgeport, New Haven and Waterbury, Connecticut; Springfield, Massachusetts and Providence, Rhode Island.

Date: September 23 to October 2, 1940

Trade Schools - Connecticut

Connecticut has ~~eleven~~ twelve State trade schools located in Bridgeport, Danbury, Hartford, Manchester, Meriden, Middletown, New Britain, New Haven, Putnam, Stamford, Torrington and Willimantic.

Their purpose is stated as the preparation of youth for self-respecting and self supporting citizenship by equipping each individual to advantageously enter employment in a skilled trade.

Training offered girls has been along the lines of beauty culture, dressmaking and the food trades. Boys have been offered training for aircraft, automobile repair, carpentry, drafting, electrical, foundry, machine, masonry, painting, plumbing, printing and patternmaking trades. The trade schools in Hartford and Bridgeport, Connecticut were visited as these two had been reported as having well developed plans and school set ups for the defense industries.

Hartford - Trade Schools and training programs in local defense industries.

The United Aircraft airplane engine plant ~~xxxxxxxxx~~ in East Hartford, Pratt & Whitney machine tool plant ~~xx~~ in West Hartford and the Colt's Patent Fire Arms Manufacturing Company, all have large defense contracts and the trade school has co-operated in training workers for these plants under the emergency training program. Special 200 hour emergency courses giving summary instruction in blue print reading, general principals of shop mathematics, and an introduction to the operating of a few of the basic production machines as lathes and drill presses has been offered and is being offered boys. The aircraft company has equipped additional

space and provided instructors to give about 50 boys at a time 720 hours extra training for their plant. The educational director at the plant felt that the 200 hour training course was too superficial. A special course in hand filing and burring had been given in the trade school to train boys for operatives in the Colt plant. Instructors for these courses were provide by the industries.

Special training for women - Last spring an instructor was sent from the Hartford Trade School to the United Aircraft plant to give a special course for women inspectors. The class was held twice a week for two hours at the end of the work-day for 18 weeks. Instruction was given in shop mathematics, scale reading, the use of micrometers, calipers, Verniers and indicators, blue print reading, lettering and dimensioning. Special problems on blue print forms were developed to illustrate shop terminology and practices. (An outline of course and some typical problems are contained in Exhibit I) About 100 girls attended the classes and the educational director of the plant felt that the course had been worthwhile. Plans were being made to give a similar course for inspectors this fall both in Hartford and Springfield, Massachusetts. Women could be used more extensively in the aircraft engine plant if women with backgrounds such as this course aims to give were available. At the present time more men than women were being employed as inspectors.

The work which had been offered boys for filing and burring operatives in the Colt plant was of a type that women could do and trade school instructors felt that this was a type of work for which women should be offered training.

The Hartford trade school apparently had a good course for girls in the food trades and a restaurant open to the public serving a la carte and club luncheons - table service - was operated giving the

girls experience as cooks, kitchen helpers, waitresses, cashiers, etc. Director of the course said that all who had satisfactory records had been placed. The "least likely" are usually placed in domestic service. The dressmaking course did not include any power sewing machine operations. Girls completing this course were placed chiefly in the alteration rooms of ready to wear stores and as seamstresses in large dry cleaning plants.

Bridgeport

Dressmaking and commercial art were only courses offered by the Bridgeport trade school to women. The General Electric was reported as interested in a course which would break girls in for the electrical industry on operations such as coil winding, soldering, operation of small presses, etc. Bridgeport has been actively aroused to the training of boys for the defense industry. An old school building had been reconditioned and was offering training in sheet metal for the Sikorsky Aviation (United Aircraft) at Straford. Plans are to train 2000 boys there - 300 capacity. In talking to one of the instructors from the Sikorsky plant, information was vouched that there are many small parts -thousands - that are formed with templates and have simple drilling operations in their processing which are light work and on which boys were being trained. This instructor said that formerly when airplanes were produced on a custom basis - not more than one or two of a kind - an operator was often required to have considerable versatility in sheet metal work but that at the present time with orders for 1000 or more of the same kind, that work is being standardized and felt that there was a good deal of light work that could be done by women as well as men.

Springfield Trade School

A large new trade school with a girls' division was opened in Springfield

Massachusetts. Mrs. Margaret C. Ells is assistant principal of the school and chief of the girls' work, which covers courses in beauty culture, millinery and novelties, bakery and foods, power laundry, retail selling, power sewing machine, and multi-occupations. The latter course is given for training for electrical products and the American Bosch Company is the main outlet for those trained. The work is in several units and includes soldering, armature, stator, condenser coil and short winding operations, assembling and inspection. In the inspection unit which requires about 200 hours of class work, blue prints, scales, micrometers, gauges, fractional and decimals equipalents and limits and inspection of materials with indicators are touched upon. (See Exhibit II) The instructor is one of the regular shop men and the laboratory work is in the electrical shop. Progress is individual and the class averages about 30 with 120 to 150 being enrolled every year. The inspection unit is going to be handled this year so that work and probl ems of airplane engine inspection are included along the lines of the Hartford training c urse. The power sewing machine course trains on five types of machines and an attempt is made to work on a mass production scale making uniforms for the school and other State institutions. About 25 were enrolled in this course.

The boys division are offering emergency courses and Mrs. Ells was much interested and concerned that the girls' training should be extended to meet the needs of the defense program.

Providense Trade School.

With the co-operation of the jewelry trade of Providence a course for women operatives was begun about a year ago. Girls have been sent from the public and school employment offices, and by manufacturers. Instruction is for bench work of the kind that is being carried on at the present time on cheap jewelry. Seven of the jewelry firms are making parts for defense industries. Course is a short one; instruction individual; some stay two weeks, some six. Sewing is the only other course being given women in the trade school. Co-ordinators to study need for beauty culture, retail selling and food and restaurant work are to be appointed.(or have been this year?)

Dr. Allen, assistant superintendent of schools, has appointed a number of co-ordinators who have made special surveys in trades such as printing, wood working, metal etc. to consider the opportunities and needs in this field. Agent was referred to Mr. Sheldon Davis who made the metal trades survey in 1939. Mr. Davis gave copies of his monograph on"Work Opportunities in the Metal Trades of Providence"and his report " A study of Problems and Conditions in Occupations in the Metal Trades in Greater Providence." Mr. Davis study shows that in 1936 of approximately 3800 workers in the machine and machine tool industry in Providense approximately 300 were women. In December 1939, the date of Mr. Davis's survey, in 20 Providence metal shops, he found 125 women inspectors. This was the only direct production job on which women were employed, while there were 1944 men on productive occupations. In the maintenance and service occupations in the metal trades, women were only found as clerks and Mr. Davis estimated that there were probably 140 women clerks. Women constituted considerably less than ten percent of the total. The following tabulations are from Mr. Davis' report.

A STUDY OF PROBLEMS AND CONDITIONS IN OCCUPATIONS IN THE METAL TRADES IN GREATER PROVIDENCE
(Pages 11,12,13)

Providence Public Schools - June, 1940

The following figures show the number employed in the metal trades in twenty concerns in December, 1939:

Productive Occupations--Men

Assembler	484
Drill Press--radial	39
Drill Press--sensitive	175
Furnace tender	13
Grinder	83
Helper	20
Lathe operator--engine	182
Lathe operator--turret	103
Machinist--production	48
Milling machine operator	254
Packer	70
Painter or sprayer	23
Planer operator	14
Punch press set-up man	27
Punch press operator	74
Screw machine automatic	61
Screw machine hand	126
Sheet metal worker	31
	1,827

Metal Finishing Occupations

Pickle tub men	4
Plater	19
Plater's helpers	20
Polishers and buffers	74
	117

Productive Occupations--Women

Inspectors	125

The Producers

2069

Maintenance or Service Occupations in the Metal Trades

Carpenters	53
Clerk--shop	219
Cranemen	3
Electricians	40
Elevator operators	23
Engineers	8
Firemen	28
Helpers	122
Laborers	158
Janitors	86
Machinists	101
Millwrights	32
Oilers	14
Painters	11
Pipe fitters	20
Shippers	46
Stock chasers	13
Stock selectors	34
Tool makers	154
Tool grinders	13
Tool keepers	29
Tool crib attendants	23
Tool room machine operators	18
Truck drivers	22
Truck operators	222
Watchmen	74
	1,566

The following tabulation, also, from Mr. Davis' report shows the major job classifications and it is interesting to note that tool makers and machinists, the definitely skilled occupations, include slightly less than ten percent of the workers.

The following table lists all jobs having over one hundred employed and the percentage compared with the total number of workers:

Jobs With Over 100 Workers	No. of Workers	Approximate Per Cent. of Total
Assembler	484	14.14
Milling machine operators	254	7.4
Clerks--shop	219	6.3
Drill press operators	214	6.3
Screw machine operators	187	5.5
Lathe operators	182	5.5
Laborers	158	4.5
Tool makers	154	4.5
Machinists	149	4.3
Inspectors--women	125	3.5
Helpers	122	3.5
Turret lathe operators	103	3.0
	2,351	68.4

The data on size of Providence plants in the metal trades in Mr. Davis' report shows that most of the workers in the metal plants are in the large establishments in which occupations are undoubtedly specialized and broken down into operations for which women could be trained and used.

This report was tabulated from information concerning thirty-four plants in the Providence area, obtained from the October, 1939, report of the Rhode Island State Department of Labor:

Number of workers	Number of plants	Percent of plants	Percent of workers	Number of employed
5-100	26	78.4%	12.7%	988
101-200	4	10.8%	7.3%	564
201-600	1	2.7%	5.5%	423
601 and over	3	8.1%	74.5%	5,780
	34	100.0%	100.0%	7,755

This report shows that three-quarters of the workers in the Providence area are employed in three plants of the metal trades industry, while the remaining quarter of the workers are employed in thirty-one plants.

Trade school courses for training in the metal trades under the emergency program began June 24th and the first course ended August 20th. Mechanical drawing, applied mathematics, and ten shop projects were covered. (See Exhibit III) Apprximately 50 hours was devoted to blue prints and mechanical drawing, 50 hours to shop mathematics and 100 hours to shop projects.

1100 boys applied to take the course and about 850 qualified after being given selective tests. Only about 250 were enrolled in the first course, and 240 or these completed it and 215 have been placed. Another group of about 250 are in training along the

same lines as the first, while a special course for recruits from the WPA and other unemployed began on July 30th.

Mr. Davis stated that he was sure that arrangements to include women in the emergency training would be readily made by the Providence Schools if there was a demand for it from manufacturing firms and interested community groups.

Providence, Rhode Island

NYA

Persons interviewed: Mr. Noyes, director of projects.
Mrs. C.G.Carr, vocational counselor for girls.

General comments on projects for women:

Power sewing machine operating - make overalls for public agencies
Milk testing project - assistants in State work.
Lunchroom projects - serving lunches in schools.
Hospital attendants - working in local hospitals as assistants to nurses.
Library assistants
Sign painting.
Blue print machine assistance - practical experience in the State work.

More than one-half of the young people who come for counseling are girls - considerably over 50 percent - and have fewer projects for girls than boys.

Would like to see more projects for women and would co-operate on any set up that was possible on a production scale.

NYA - New Haven
Mr. Barrett - director
Miss Ketcham - employment counselor
marked
Only interest in Connecticut area for training women has been in in the power sewing machine projects. Have several in the area, Bridgeport, Ansonia, Hartford and New Haven.

Have girls in training as hospital assistants.
Girls have done well on sanding on a furniture project. Some have been trained in use of electric needle. Some have worked on a sign painting project in Bridgeport. Have had a radio project and expect to have one in Bridgeport. Production work is on police cars.

Both Mr. Barrett and Miss Ketcham seemed interested in projects which might be developed for women in the machine trades and defense industries. Asked to be kept informed of developments along these lines.

October 1940

Connecticut Employment Service, Waterbury, Connecticut.

Interviewed: Mrs. Dewey, acting director

Waterbury manufacturers in December 1939 reported about 24,000 employees approximately 17,000 of these were men and 7,000 were women.

Scoville's the largest single employer of women in metal shop. The clock companies - Waterbury and Benrus - employ a relatively large number on bench jobs requiring finger dexterity. Seth Thomas at Thomaston has large number of women and have defense contracts for timing devices. U. S. Rubber Company near Waterbury at Naggatuck is requisitioning more stitchers than can be recruited.

Mrs. Dewey was urging a power stitching project for women.

Mrs. Dewey said that the trade school at ~~Leavenworth~~ Thomaston was bulging with boys but that there was nothing for girls.

The principal employers of women in Waterbury are:

1. Scovill
2. Waterbury Mfg. Co. (Chase Co.)
3. Benrus Watch
4. Lux Clock - making time units
5. Waterbury Clock
6. American Brass

Nearby are Seth Thomas and General Time and U. S. Rubber

October 1940

Bridgeport, Connecticut

Interivew with Mr. Alpheus Winters, Director and president of Manufacturers' Association.

Agent was referred to Mr. Winters as one who was much interested in the emergency training program and in trade education.

Mr. Winters is a member of the Bridgeport Employment Council which has worked to get co-operation from the manufacturers in providing machines and instructors for training program.

Mr. Winters agreed that plans for training of women had been neglected. He felt that the training of women was important. Thought that 50 percent of the inspection jobs at least in the local factories could be done by women.

When registrations for the emergency training were taken about 1500 young people registered and about one-third or 500 of these were women. Tests were given to select those to be given training. Tests are chiefly those worked out by Dr. Millicent Pond of the Scoville Company in Waterbury.

300 boys have recently been selected for metal shop training for the Sikorsky (United Aircraft) plant at Straford. Part of old school - McKinley - has been prepared and equipped to give the work and course began September 30. Three shifts are to be trained. The aircraft company has loaned foremen and skilled mechanics as teacher. Principal is from the Bridgeport Trade School - Mr. Clarke.

National Industrial Conference Board and also Liberty Magazine are going to have articles on Bridgeport training program.

October 1940

Providence Board of Education - Division of Vocation al Education -
Providence Trade Schools

General:

Agent was referred to Dr. Allen, assistant superintendent of Providence Schools as o e who is a leader in trade school education and a general expert in this field. Dr. Allen was not available and agent was referred to F. Sheldon Davis, metal trades co-ordinator. See Mr. Davis' reports: A Study of Problems nd Conditions in Occupations in the Metal Trades in Greater Providence and Work Opportunities in the Metal Trades in Greater Providence.

Training for women in the trade school -

Seven plants in the Providence area making jewelry are doing some small parts for the defense industries.

With the co-operati n of the jewelry trade a short unit course for women operatives was established. Girls have come from the public employment offices nd some have been referred by the manufacturers to whom they have applied for work. This has been given for about one year.

Instructors and materials were furnished by the manufacturers and instruction was on an individual basis on small machines and bench work of the type current in the cheap jewelry trade. Girls came for as long as necessary for speed. Some trained for two weeks, others for six. Placements have been 100% of those who could be approved. Present enrollment is 75 and have a waiting list of 10 or 15.

Training for defense

Dr. Allen had become insterested in the need for metal workers before the present emergency and had appointed Mr. Davis as co-ordinator. His first work was a study of employment in metal trades in Providence. See "Work O pportunities in the Metal Trades."

First course in metal trades for emergency program began June 24th and ended August 20. 240 boys completed the course and 215 were placed ~~xxxxxx immediately~~ in 17 firms but some are still to be absorbed. Another course with about 250 are in training. 1100 boys applied to take the work and 859 qualified after selective tests.

Work in above course was 200 hours - 50 hours (approximately) on machine shop mathematics, 50 hours on blue print reading and 100 hours on machine shop work.

On July 30th another course in metals was opened to all ages, ½ were from the WPA and the other half other unemployed.

Another class is to be set up to give furtner training beyond the 200 hour course.

Mr. Davis felt that Providence Trade School could include women in their metal trade courses if there was some interest in this training on the part of the community and manufacturing firms.

Hartford Trade School, Hartford, Connecticut.

Interviewed:

Mr. J. E. Daly, acting director

Mr. J. H. Hill, instructor in the metal trades, aircraft, etc. related subjects.

Training offered girls

Hartford Trade School offers courses in beauty culture, food trades - operate a restaurant or lunch room in school building open to the public, and dress making. Girls from the food trades course have been placed as waitresses, salad girls and assistant cooks in restaurants and hotels. Those from the dressmaking course are placed in the alteration departments of dress and department stores and with local drycleaning firms as menders and repairers.

Last spring a special course was offered to women inspectors at the aircraft plant. The educational director, Mr. Smith, arranged with the trade school for an instructor to be sent to the plant two afternoons a week at 3.30 to give two hours instruction in shop mathematics, blue print reading, micrometers, calipers, verniers, etc. About 100 girls attended. Some difficulty was met with in that the increasing amount of work brought overtime and class work was so badly disrupted in the spring that the trade school was loathe to consider a nother course this fall on the same basis. Plan is for girls to come to school in the evening this year. Mr. Hill gave agent an outline of course of study and some of the problems used. (See Exhibit I)
No course under the emergency vocational plan has been set up for girls.

Training offered boys

Automobile repair and mechanics, carpentry, drafting, electrical, machine shop and toolmaking, masonry, painting, paperhanging, plumbing and printing are on the boys program.

Special emergency courses of 200 hours duration are being given boys for machine tool plants, and for Colt's automatic rifle and for the United Aircraft.

These courses - 200 hours - merely give smattering instruction in blue print reading and the basic principals of lathe, drill press and simple machine operations. Cannot give much production experience in this time. Aircraft Company has equipped another school room with special equipment where boys specially selected are given 320 additional hours of training to fit them as machine operators. There are 42 boys in this group.

Special course given for the Colt Company in burring and filing. Mr. Hill felt women could be used on this work and same course given girls.

October 1940

Bridgeport Trade School -

Person interviewed - Mr. Hill, principal
Mr. Clarke - principal at McKinley School (new division where aircraft training is being given.)

Training for women

Dressmaking and commercial art only trade school course which has been offered women.

Mr. Hill stated he would like to set up the auditorium space for a school to train women in. He thought they might be taught various skills needed in bench assembly - use of automatic screw drivers, rivet presses, some drilling, soldering etc. Was interested in something similar to the multi-occupations course of the Springfield school.

Said that the General Electric has been interested in a training course for girls.

Metal trades training for United Aircraft (Sikorsky plant).

McKinley Trade School division has just been opened - plan to train 2000 sheet metal workers. Boys will be sent to plant for employment as soon as efficient. Plan for course to last about 6 weeks but turnover will be continuous and much of instruction will be individual. Regular class work in related subjects.

Mr. Sorantino - instructor loaned form United Aircraft for sheet metal work.

United Aircraft - Sikorsky plant has about 15 women and 6000 men.

Women are sewing and preparing covering to be used by the dopers on aerlons. On some of the old planes the fuselage was covered with cloth and women worked on sewing this but this is a discontinued operation except on special or repair orders.

Asked if there were no small repetitive operations on parts that women could be trained for, Mr. Sorantino said that there were thousands - was sure there were at least 5000 small parts that were of light metal and could be formed by women. Showed agent several small pieces that had been formed in a hand chuck with a template. Women could do spot welding and many drilling operations.

September 1940

Springfield Trade School - Springfield, Massachusettd

Girls' Division

Persons interviewed:
Mrs. Margaret C. Ells, assistant principal and chief of girls' division.
Mr. Clarke - instructor in multi-occupations course.
At present time, the following courses are being offered to girls:

Beauty culture
Millinery and novelties
Bakery and foods
Scientific power laundry
Retail selling
Multi-occupations - Course devided into several units and is flexible to community needs.
Power sewing machine

Also, Mr. Smith of the United Aircraft at Hartford has conferred with the school principal ab ut the introduction of a course for inspectors. Planning to give this course in near future and it will follow at least for the beginning the course outlined by the Hartford Trade School.

Multi-occupations course has been given since 1934. American Bosch - electrical goods has been the chief outlet. Class averages 30 in number and there are four or five complete turnovers each year. See Exhibit II

The multi-occupations course includes instruction in winding armature and other coil winding, small punch pressms, visual inspection and gauge inspection.

Power machine operators - 25 girls taking course. They make uniforms for school, hem towels for cafeteria, etc. Outlet has been chiefly underwear factories. Have power sewing and special machines as buttonhole, button, and zig zag seam machine.

General: Mrs. Ells was much interested and concerned that girls training should be extended to meet the needs ofthe defense program.

SPRINGFIELD TRADE SCHOOL

GIRLS' DIVISION

2025 MAIN STREET

SPRINGFIELD . .
MASSACHUSETTS

TRADE COURSES

FOODS and CATERING

Offers intensive training in menu planning, marketing, figuring food costs, handling money, meat and vegetable cookery, pastry cooking, decorating, hostess and waitress work. Some qualifications necessary for success in this type of work are:

1. Cleanliness
2. Good health
3. Patience
6. Self-confidence
4. High standards
5. Honesty

DRESSMAKING

A girl who takes Trade Dressmaking should have a knack for making clothes, taste for color and artistic combinations, patience, perseverance, and a personality that will aid her in getting along with people. She should be swift with her needle, good in measurements, and have an eye for line and design.

POWER MACHINE STITCHING

Training on five different types of machines in power control and straight stitching. Trade knowledge, short cuts to garment construction, mass production, and speed. Girls who take this course must have a keen eye for accuracy and be able to attend strictly to precision of work and requirements of job. Accuracy and speed are of prime importance.

MULTI-OCCUPATIONS
WINDING, SOLDERING, ETC.

Girls who take this work should be eighteen years of age, adaptable, quick to grasp details, and follow instructions, whether it be on bench work, safety regulations, or on a machine. The course is divided into several units, any one of which upon completion may lead to employment in the various factories of the community.

VOCATIONAL HOMEMAKING

The aim is to prepare girls for homemaking and to "tryout" girls who will be placed in employment or one of the Trade courses. Work in both Foods and Clothing will be given. Training in general care of the home, including the fundamentals of cleaning, laundering, consumer purchasing, and artistic arrangement of rooms, to the end that home may be a place where one may not only live, but get enjoyment out of living.

RELATED TO ALL COURSES
HOME HYGIENE

Individual Health and
Personal Hygiene
Home Care of the Sick
Child Care
Emergencies

Exhibit H

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WINDING, SOLDERING, ETC.

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RELATED TO ALL COURSES
HOME HYGIENE

Individual Health and
Personal Hygiene
Home Care of the Sick
Child Care
Emergencies

RELATED BUSINESS PRACTICE

Business letter writing, proper use of telephone and cash register, filing, simple accounts, typing, etc. Guidance and Personal Regimen, Salesmanship, Economics. Additional training which will assist them to succeed in securing and holding positions.

RELATED ART

a. Decorative Art

Design applied to posters, lettering, crafts, and to the decorating of wood and metal objects. Table decorations, favors, menus, and flower arrangement.

b. Costume Design

Art in costume: color, line, proportion, balance, rhythm, harmony. Corrective dress: clothes each type of person should wear, including millinery and accessories. Modern clothes designed from historic costume.

RELATED SUBJECTS
GENERAL ACADEMIC

English — **Science**
Civics — **Economics**
Arithmetic — **Music**
Physical Education

School is in session forty weeks each year.

Hours for Trade Courses (Trade Dressmaking, Power Stitching, and Foods and Catering,) from 8:15 A.M. to 3:45 P.M. — for General Department (Vocational Homemaking and Multi-Occupations) from 8:15 A.M. to 2:45 P.M.

Absence from school requires a note from parent or guardian. Continued tardiness is not allowed and may mean the loss of one's place in school.

Lunch Hour — 12:10 P.M. to 12:45 P.M.

Smocks — All girls are requested to wear regulation smock for particular course. These smocks are made in school. Girls will arrange for them the day they enter the Girls' Division of the Trade School.

Placement — The school attempts to place girls in positions for which they are fitted and trained. Since employers depend upon the recommendation of the school when hiring new workers, it is usually unwise to recommend for positions girls who drop out before completing a course or a prescribed unit of work.

The main requirement for every girl is, that she be neat, courteous, orderly, and never forget to be a lady.

MANUFACTURERS ASSOCIATION, BRIDGEPORT, CONN.

Number 7232 September 25, 1940.

INSTRUCTORS FOR NATIONAL PREPAREDNESS

One serious bottleneck in our local intensive training program for national preparedness is the non-availability of qualified instructors regardless of the proven fact that one instructor is able to train 100 or more persons per year so that they will be capable of operating some particular machine or performing some other essential service.

There is an immediate demand for two types of instructors in connection with the training courses now operating, or to be organized in the near future, by our local State Trade School.

The most urgent demand is for a limited number of skilled craftsmen such as machinists, toolmakers, die makers and gauge makers who will be trained and employed by the State Trade School as instructors at a starting salary commensurate with the pay now received plus a night bonus. These instructors must be physically fit men under 50 years of age with considerable practical experience. For the most part at least they will be assigned for night duty.

Because there is no other known source, such instructors must be obtained from industries, upon a "loan" basis, it being clearly understood that their salaries will be paid from state-federal funds while they are in this service.

A secondary demand, and one that doubtless will be easier to fill, is for part-time instructors for supplementary jobs such as male and female assemblers, inspectors, packers, factory clerks, time clerks and other service and productive workers.

Instructors in this field will be limited to the early evening hours, probably from 7:00 to 9:00, and only for two or three nights per week. Such instruction would be in addition to their regular factory duties and compensation therefor will come from state-federal funds.

All instruction rendered in accordance with the above outline is limited to training for our national preparedness program and therefore every member cooperating therewith will be rendering a definite and necessary patriotic service.

Every member which is in a position to do so is urgently requested to fill out and mail the attached.

Alpheus Winter, Manager.

Manufacturers Association
Bridgeport
Conn.

Date _____

Without making any commitment in advance, we will be pleased to have Mr. J. D. Clarke, Supervisor of the Defense Training Program of the local State Trade School, make an appointment with our Mr. _____ for a discussion as to the possibility of this company "loaning" one or more instructors for training national preparedness workers.

COMPANY _____

OFFICIAL _____

September 23, 1940

Connecticut - women's training and employment in defense industries.

Notes;

Hartford -

Saw Mr. Kahler of the Committee on Apprenticeship in Hartford in office of the Connecticut State Department of Labor.

Governor Baldwin has been greatly interested in the apprenticeship problem and the Connecticut State Apprenticeship Council and the increased training being given in the State trade schools. Connecticut trade schools began training metal workers and machine operators before defense program. Courses were given early in 1940.

Mr. William Fitzgerald, mayor of Norwich, Connecticut - ex Congressman at large, former deputy labor commissioner, is interested in training program and Mr. Kahler thought he might be a good person to approach for help in pushing training plans for women.

(ROUTING)

MARCH OF EDUCATION

U.S. OFFICE OF EDUCATION

FEDERAL SECURITY AGENCY
WASHINGTON, D. C.

UNITED STATES OFFICE OF EDUCATION
SEPTEMBER, 1940. NO. 21

MARCH OF EDUCATION No. 1 went to educators in September, 1935. Then education faced an acute phase of the *depression* emergency; today we face a *defense* emergency. To meet emergencies we must act in concert and act swiftly. MARCH OF EDUCATION affords a rapid medium for exchange of vital information. As usual it will be issued as needs require. Suggestions for improving MARCH OF EDUCATION'S usefulness will be appreciated. Please route it to your colleagues. You are welcome to use any of this material in other publications or announcements.

John W. Studebaker

U. S. Commissioner of Education

EDUCATION FOR DEFENSE

Every morning this summer a double line of men and boys stood at attention in front of the factory-like vocational school in Williamsport, Pa. As a bugle sounded they raised arms in salute to the Stars and Stripes as it fluttered to the top of the flag pole.

Why should a group of shirt-sleeved citizens stand in double line saluting the flag? Was this some new kind of army? Some volunteer corps?

If you had been privileged to stand silently beside them you would have seen that they ranged in age from about 18 up to 60. You would have seen faces clean and shiny but shirts and trousers smudged with grease. Obviously these men were not ordinary students. Nor ordinary workmen. Nor soldiers in arms. They were and are members of the new citizen army of defense workers. Their hands are horny and calloused because they are not new to work. After studying six or eight or twelve weeks in special vocational courses they will enter the swiftly expanding defense industries of Williamsport.

There are a hundred thousand more Americans like this double line at Williamsport. In 43 States and the District of Columbia they are enrolled for defense training. There are at least 433 more Williamsports ranging from New York City (population 7,380,259) to Boulder, Colorado (population 12,831).

Called to national service on June 27, American workers, American teachers and American school systems responded instantly. In the first two months one hundred thousand were being prepared to take their places in the national defense effort. Plans are on foot to train at least five hundred thousand more.

How this has been done is a success story of democracy. It is a story of 23 years of preparedness. It is the story of a billion dollar system of vocational training built up by local American school boards in cooperation with their State and national governments. It is the account of a typically American institution so skillfully organized, so expertly staffed that it met the call to national service on a week's notice. Following, in brief, are facts on one of the swiftest moving programs for national defense.

What do we need for the defense of our Country? Fifty thousand planes. Thousands of tanks. Guns and munitions. A two ocean navy. It became clear immediately that to build the machines of modern warfare America must have men--trained workers.

The conferences on May 27 and June 4 recommended that the billion dollar investment in vocational schools and equipment be put to immediate use for defense. The school officials called together urged that the vocational schools be reopened for the summer for two (See page 3)

MEETING AN EMERGENCY -- A REPORT IN DATES

May 10 The German army and air force make surprise attack on Holland and Belgium.

May 27 Commissioner Studebaker assembles first conference to prepare proposals on training for national defense in public trade schools and engineering colleges.

May 28 President announces formation of the National Defense Advisory Commission.

June 5-6 State and national educational leaders publicly endorse the proposals.

June 14 Presidents and deans of engineering schools meet at U. S. Office of Education.

June 19 President Roosevelt recommends to Congress $16,200,000 appropriation for summer defense training program in vocational schools.

June 22 France asks for an Armistice.

June 23 Congress appropriates $15,000,000 for summer defense training.

June 25-27 State directors of vocational education confer with Office of Education staff to complete plans for vocational defense training.

June 27 The President signs the defense training appropriation bill.

July 1 Registration of trainees begins in many centers. National Advisory Committee on Trade and Industrial Education meets.

July 10 President Roosevelt submits $4,800,000,000 defense program to Congress.

July 15 30,000 workers enrolled in vocational defense courses.

July 27 Havana Conference agrees on joint defense of the Western Hemisphere.

July 31 80,614 enrolled. Placements begin.

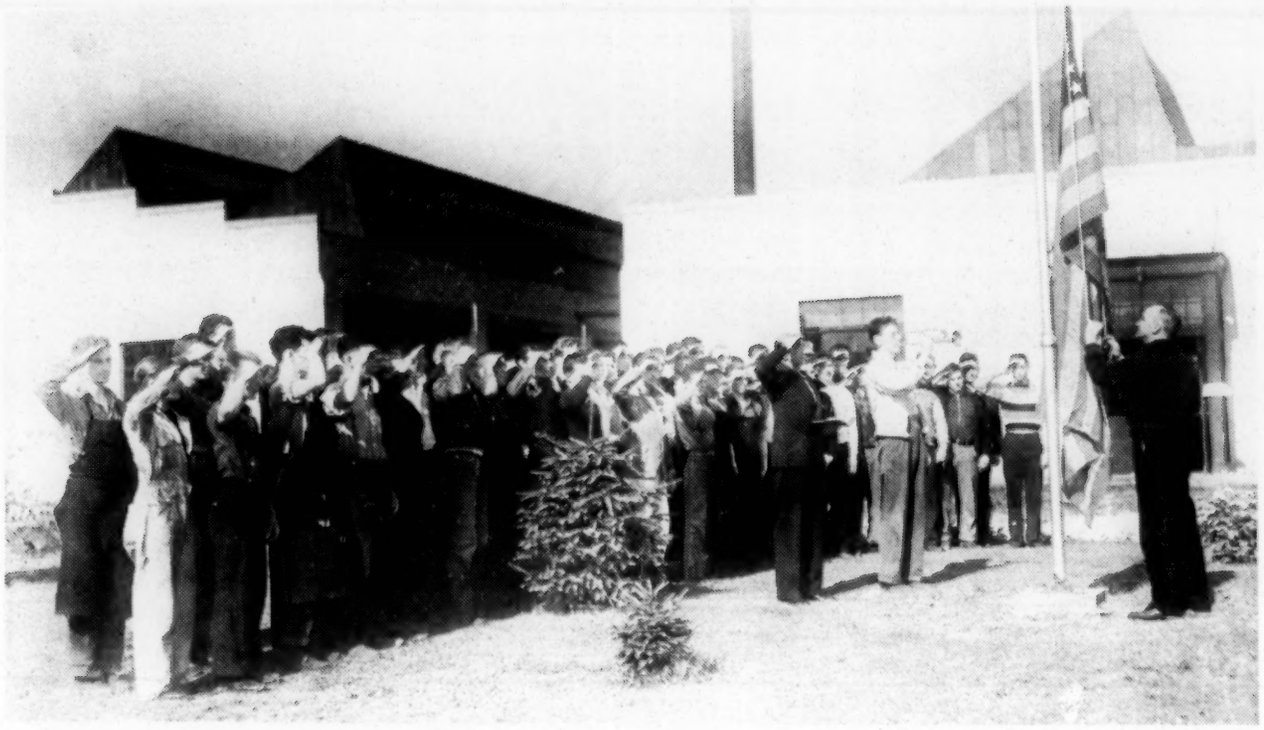
Aug. 15 92,471 enrolled. Placements above 3,000.

Aug. 24 The President recommends to Congress $44,000,000 to continue defense training in vocational schools through June 1941 and $9,000,000 to launch defense training in engineering colleges.

Aug. 28 Senate passes selective service bill.

Sept. 4 House Appropriations Committee holds hearing on President's recommendation.

Sept. 6 Commissioner of Education reports at Federal Advisory Board for Vocational Education meeting about 100,000 men and women in training.



types of short course training of defense workers: (1) Pre-employment refresher courses for workers who had had previous work experience; (2) Supplementary courses for employed workers who needed to learn additional skills.

Recommended by the President, this program, designed to give immediate training to more than 100,000 workers, passed Congress on June 23. Four days later the President's signature made it law. On July 1 students began pouring into the vocational schools of the nation. Teachers cancelled their vacations. Additional teachers were employed. Some schools went on 24-hour schedules. On July 15 enrollments reached 30,000. Two weeks later 80,614 students were at lathe and workbench in 41 States. By the end of August the defense student worker army totaled more than 100,000. Thousands had already completed their courses and were on their way to jobs in occupations essential to national defense. New students take their places.

NOTICE TO STUDENTS

THIS SCHOOL is now an important part of the program of our National Defense. By the act of enrolling, you have enlisted in a service which is vital to the Nation's welfare and safety. With the faculty you undertake to perform faithfully a program of work and training designed to fit you for service in the essential industries of national defense. We congratulate you on your patriotic purpose!

This school has a long record of service to the community and to the Nation. We hope that you, as a student, will uphold the excellent reputation of the school. We expect loyalty and cooperation from you while you are a member of the student body; in fact, you will not be permitted to conduct yourself in a manner which will detract from our aim of National service. The pace will be swift; the work will be hard. There is no place in the national defense for the weak or careless. You the new Mechanical Youth of America are the keystone of the arch of national security.

Let us all be worthy of such an important trust.

POSTER USED IN THE WILLIAMSPORT, PA. VOCATIONAL HIGH SCHOOL

WHO ARE THESE STUDENTS? They are 18 to 60 years old. They are nearly all men. There are a few women in places where defense industries require women. They have all had some work experience. Most of them have had mechanical or trade experience in closely allied fields. They have been mechanics, hosiery machine operators, electricians. 32,782 are employed and are returning to night school to learn additional skills or new tricks of old trades. Almost one fourth of all trainees are from WPA--21,186 on August 21--men who have been mechanics but who need refresher courses before resuming employment. These men continue on WPA rolls while taking courses to refit themselves for jobs in industry.

WHAT DO THEY STUDY? They study for jobs in defense industries listed by the Defense Commission:

WE WILL GET READY ....

We will get ready physically and materially. We will build the greatest military and naval and aerial defenses the world has ever seen. We will not *equal* our potential enemies in military strength. We will *outdo* them. We will show the world what a vigilant, alert, and free people can do when danger is recognized.

And equally important, we will enrich our ideals and rededicate ourselves to the democratic way of life. More than ever before in our history, we must make democracy a living, burning force in the lives of our people.

Paul V. McNutt, Administrator
Federal Security Agency

Aircraft--manufacturing, maintenance and repair
Automotive--manufacturing, maintenance and repair
Forging
Foundry
Sheet metal
Ordnance, light and heavy
Machine tools
Shipbuilding--manufacturing, maintenance and repair
Electrical
Boiler and heavy steel plate
Light manufacturing
Woodworking
Ammunition

MATCHING LOCAL NEEDS: Actual courses of study vary according to community needs. Needs are identified by local advisory committees representing labor and management. More than 1300 such advisory committees are functioning. Courses match local needs. Courses most frequently offered include: blue print reading, lathe work, milling machine, chipping and filing, parachute-making, welding, riveting, tool-making, auto mechanics, aviation mechanics, pattern-making, drafting, electricity, radio, aviation sheet metal, foundry practice, machine shop practice.

HOW LONG DO THEY STUDY? To meet the emergency, vocational schools have designed short courses--200 to 500 hours. This means six to twelve weeks. Pre-employment refresher courses run six or eight hours per day, supplementary courses two to four hours per night two to three times per week. Of course a student may take more than one course at a time. He may take blue print reading and pattern-making. He may take riveting and welding. Some take a preparatory refresher course and follow up with supplementary courses after they have secured jobs.

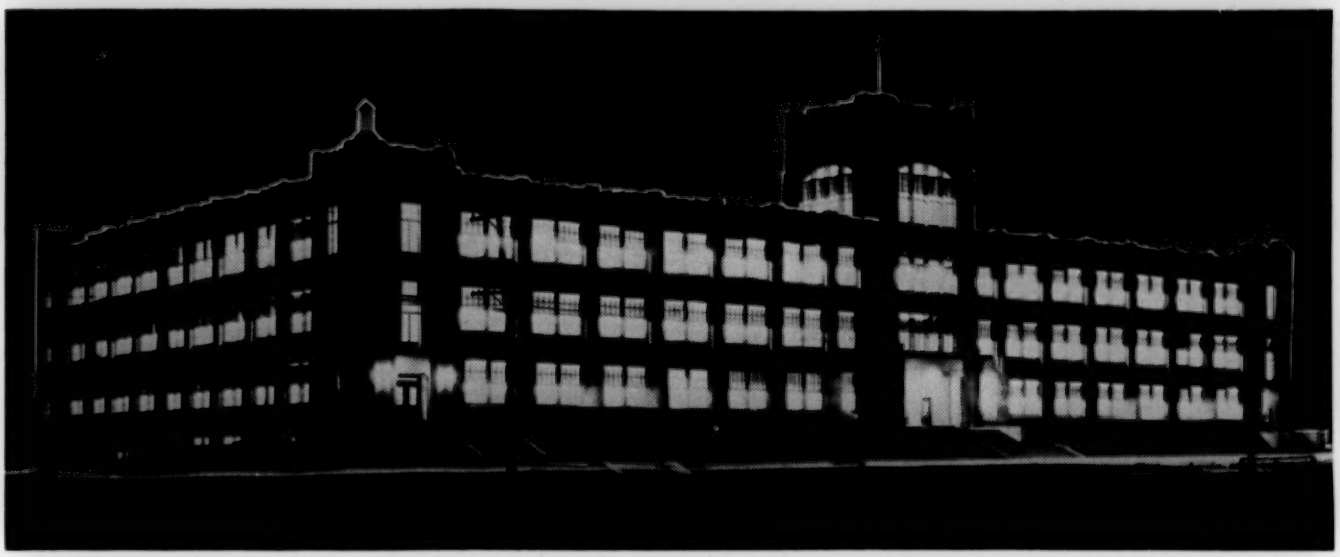
DO THESE COURSES PRODUCE EXPERTS? No. You can't turn out experts in six weeks. You can train a man to *run* a lathe that has been set by an expert. But you can't train a man in six weeks to *operate* a lathe as an independent worker unless he has been a skilled worker and simply needs refresher training. Foremen on the job do the rest for short course graduates. Experience in a shop under the eye of a good foreman will go far toward making a learner an expert.

ARE THEY BEING HIRED? Yes. By the end of July more than 3,000 had been placed. One school official asked how he could keep students in training until they had finished their courses. At Paterson, N. J., 686 went from school into jobs in one month. With Government defense contracts moving rapidly there is every indication of heavy demand for workers from vocational schools.

WILLIAMSPORT PUBLISHES FOLDER: An illustrated folder on "Vocational Training for Defense" has been published by the Williamsport, Pa., Emergency Training Commission, under the direction of G. H. Parkes. Commissioner Studebaker has asked Mr. Parkes for 600 copies to send out to other vocational school directors. Defense Training Director Dr. Franklin J. Keller of New York City announces plans for a special illustrated booklet on Manhattan's defense training work.

THREE-PHASE LABOR SUPPLY: Sidney Hillman, Defense Advisory Commissioner for Labor, on September 9 announced a program that "provides for development of our labor resources for insurance against shortages or bottlenecks' without creating any new or enlarged organization. First step, already completed, was to inventory the Nation's unemployed man power... The next reserve depends upon cooperation of industry in training new men in industrial plants." The third reserve "is composed of men and women training in vocational schools throughout the country, under the supervision of the United States Office of Education."

"OUR BIGGEST PROBLEM IS TRAINED PERSONNEL AND IT APPEARS OUR ONLY RELIEF WILL BE THROUGH VOCATIONAL AND ENGINEERING EDUCATIONAL FACILITIES. (SIGNED) LAWRENCE D. BELL, PRESIDENT, BELL AIRCRAFT CORPORATION, BUFFALO, NEW YORK."



LIGHTED SCHOOLS BEACONS OF DEMOCRACY

I think you will be proud to learn how America's great school system responded. On June 27 the President signed the appropriation bill. Four days later--July 1--some schools began registration. On July 15 thirty thousand boys and men were in training. Today vocational schools in more than 400 cities are training 100,000 men and a few women. Already thousands of trainees have been hired by defense industries. We called on American schools, American teachers and American students in our emergency and we found them prepared for instant action. This is a triumph for democratic institutions. So important are trained workers to defense that the President has just asked Congress to include in its appropriations for defense a new allotment to continue defense training throughout this school year. If Congress approves you will see the lights of our great vocational schools burning throughout the night. These lighted schoolhouses will be shining beacons to let the world know that democracy prepares to defend itself against all aggressors.

--From talk by Wayne Coy, Assistant Administrator, Federal Security Agency, on "Salute to the Schools" program on NBC Blue Network, September 3.

N. Y. SURVEY REVEALS SKILLED LABOR NEED: A skilled labor survey in New York State conducted as of July 1 indicates that a total of 207 industrial firms having munitions contracts will have an employment need of 4,100 additional workers if the firms operate on the basis of one shift, 22,741 workers on a two-shift basis, and 33,162 workers on a three-shift basis. Four cities were included in the New York State Survey--Rochester, Buffalo, Syracuse and Utica.

LABOR AND EMPLOYERS PLAY IMPORTANT ROLES: Labor and management are playing important roles in the vocational education national defense program, locally and nationally. More than 1,300 advisory committees consisting of representatives of labor and employers are working with educational authorities in local communities. These committees assist in making local surveys of the supply of labor in relation to the needs of industry. The committees also determine the most satisfactory policies for operating a vocational training program in each local community. Similar committees have been organized by State educational authorities.

READ

SCHOOL LIFE

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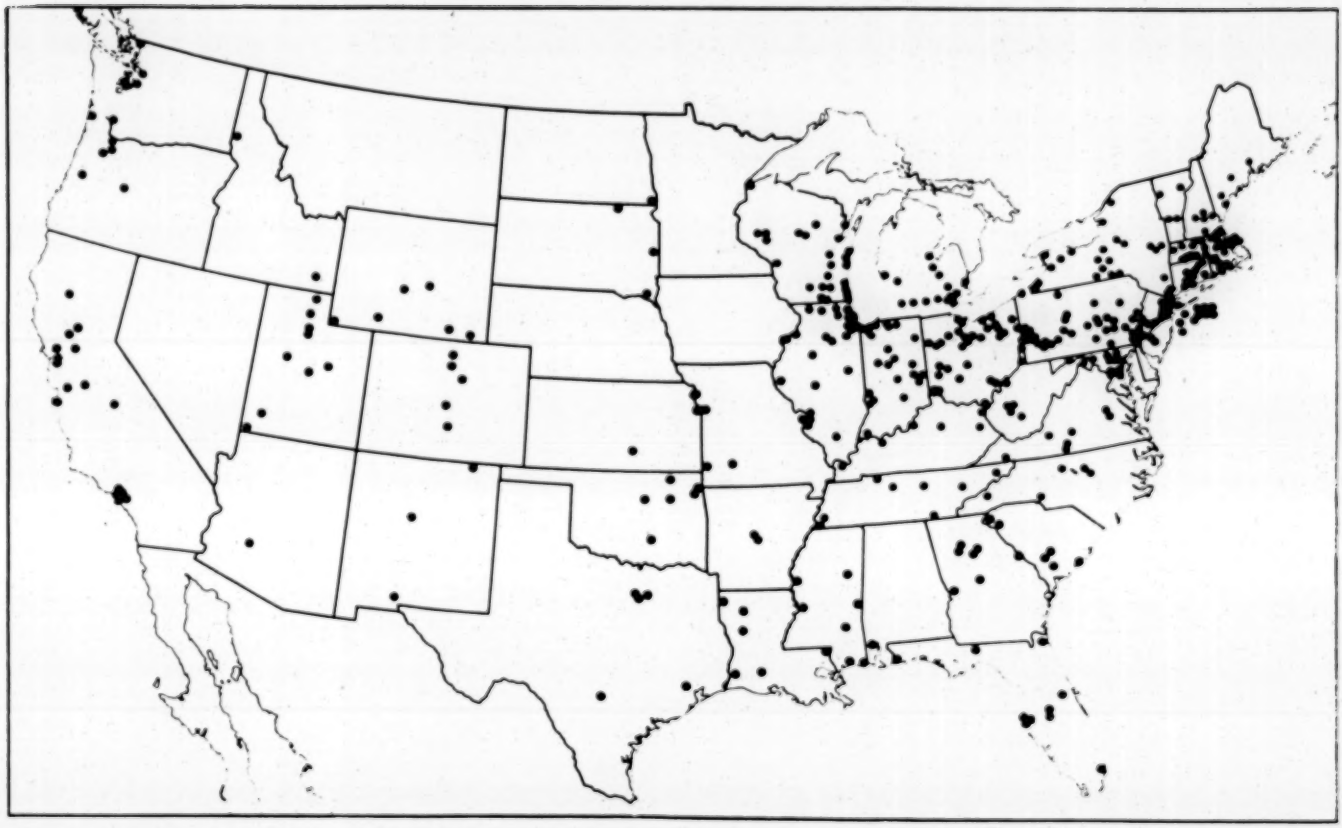
CENTERS OF TRADE SCHOOL DEFENSE TRAINING



This map shows only centers for which reports have been received. Actually many more centers are in operation. Plans for defense training have been received from all 48 States, Puerto Rico, Hawaii, and the District of Columbia. Defense training has been launched in all except a few States. Plans envision courses offered in practically all of the 1053 public trade schools.

CONTRAST: WORLD WAR I AND NOW

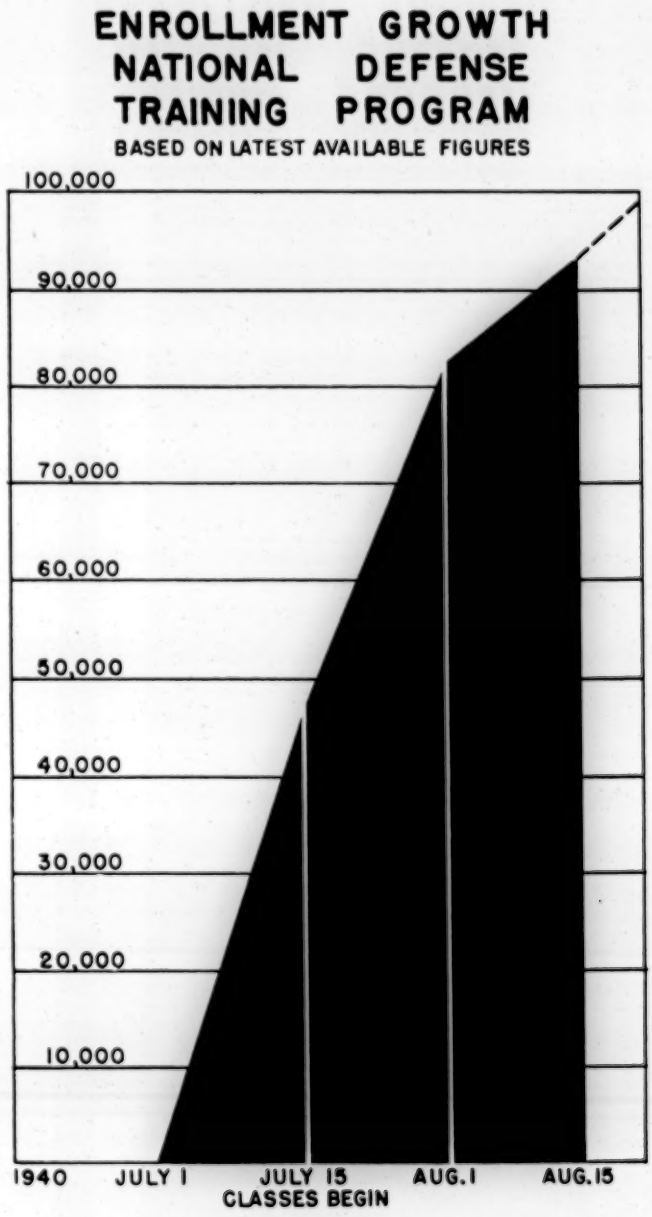
Federal encouragement of vocational education had just begun when the first World War broke out. Congress in February, 1917, approved the Smith-Hughes Act which had been pressed since 1908. United States declared war in April 1917, and three months later the Federal Board for Vocational Education held its first meeting. Many States acted during the summer and fall to set up State machinery. Urgent need prompted the new vocational education system to respond as swiftly as possible. Vocational teachers trained radio operators, welders, mechanics, and other skilled workers. But the contrast between then and now provides dramatic evidence of vocational education's increasing value to national defense:

	World War I 17 Months	Present Emergency First 2 Mos.
Training Centers	125	462
Number Trained	61,151	92,471

Thus vocational schools in two months of 1940 trained 30,000 more men than they did in 17 months under wartime pressure. In 1917 we had a few trade schools; today we have 1,053 such Federally aided schools with a capital investment of more than a billion dollars. In 1917 the few teachers available were sought for war industries; today we have a regular staff of more than 7,000 teachers of trade and industrial courses and many in reserve.

How did industry manage in 1917 and 1918? In the first place war orders from the Allies, 1914 to 1917, had enabled industries to recruit and train workers. Colleges and universities set up training centers. But more important still were the vestibule schools set up by industries. Government war contracts permitted extra charges by industries to pay for these schools. There is every reason to believe that a higher quality of instruction at a much lower cost to the Government and with much less interruption of production processes can be provided in the present emergency by our wide-spread system of vocational education.

LABOR UNIONS URGE PARTICIPATION IN DEFENSE TRAINING PROGRAMS: Both the A. F. of L. (Metal Trades Department) and the C. I. O. have issued statements to their members on the defense training program. They urge full cooperation in training for defense and active participation in local advisory committees.



Job after Week's Training: One of the earliest reports of placement in the vocational education national defense program reached the U. S. Office of Education by postcard. This brief message came from H. O. Dietrich, Superintendent of Schools, Norristown, Pa.: "A most unusual case--man out of work for six months spent a week in defense machine training in our school shop--and was employed."

ENROLLMENT IN NATIONAL DEFENSE VOCATIONAL TRAINING

Tentative Report for the Period as of September 1, 1940

States	Number of Cities Conducting Training	Enrolled in Pre-employment Short Courses	Employed Workers Who Return after Work Hours for More Training	Total Enrollment
Alabama	3	301	375	676
Arizona	1	73	0	73
Arkansas	2	44	91	135
California	15	3,654	601	4,255
Colorado	5	1,479	26	1,505
Connecticut	12	479	0	479
Delaware	1	216	0	216
Florida	7	897	0	897
Georgia	7	920	0	920
Idaho	2	69	0	69
Illinois	23	6,281	5,379	11,660
Indiana	6	1,418	848	2,266
Kansas	2	474	188	662
Kentucky	7	976	1,371	2,347
Louisiana	6	581	744	1,325
Maine	4	138	0	138
Maryland	13	1,847	1,427	3,274
Massachusetts	26	2,685	240	2,925
Michigan	15	2,934	348	3,282
Mississippi	8	197	143	340
Missouri	5	616	324	940
New Hampshire	5	337	13	350
New Jersey	14	2,969	1,533	4,502
New Mexico	3	0	98	98
New York	33	12,662	15,758	28,420
North Carolina	6	389	101	490
North Dakota	1	111	0	111
Ohio	37	3,464	2,116	5,580
Oklahoma	7	310	337	647
Oregon	7	1,610	188	1,798
Pennsylvania	52	8,171	760	8,931
Rhode Island	9	1,065	70	1,135
South Carolina	17	1,421	0	1,421
South Dakota	3	177	0	177
Tennessee	8	1,647	70	1,717
Texas	6	919	453	1,372
Utah	9	604	550	1,154
Vermont	3	116	20	136
Virginia	11	1,047	951	1,998
Washington	5	3,822	520	4,342
West Virginia	11	1,170	686	1,856
Wisconsin	36	2,316	0	2,316
Wyoming	6	188	7	195
District of Columbia	1	627	0	627
Total	462	71,421	36,336	107,757

PLAN TO REDUCE ENGINEER SHORTAGE PROPOSED

Defense industries need engineers. But they need engineers with specialized knowledge. "Bottleneck" shortages of engineering skill have already appeared in the following classifications: Naval architects, ship draftsmen, marine engineers, engineers skilled in airplane structures, airplane power plants and airplane instruments, machine tool designers, and engineers to supervise and speed up production in the industries essential to national defense programs. In the near future it is expected that there will also be a shortage of inspectors of materials who are familiar with physical, chemical, metallographic, X-ray and similar tests. There may also develop a need for more radio equipment inspectors, structural and machine designers, tool designers, metallurgists, sanitary experts, meteorologists, industrial personnel supervisors, experts in submarine and airplane detection, designers of special electrical devices, experts in aerial photography and mapping, and similar specialists who require engineering knowledge.

To help eliminate these "bottlenecks" President Roosevelt has recommended to Congress the appropriation of $9,000,000 to defray the costs of specialized short courses in engineering colleges. On September 5 the House Appropriations Committee held hearings on this proposal.

Behind the recommendations are weeks of intensive study. On June 14 U. S. Commissioner of Education John W. Studebaker called a conference of engineering college leaders to consider the problems posed by the emergency. As a result of these deliberations Dean A. A. Potter, head of the College of Engineering, Purdue University, and Chairman of the Committee on Engineering Schools of the Engineers' Council for Professional Development, remained in Washington to work with F. J. Kelly, Chief of Higher Education, U. S. Office of Education, and to confer with Army, Navy and Defense Commission officials. When the chief shortages in man power had been identified surveys were undertaken to find out which engineering colleges were equipped to train for the specialties. From these investigations the proposals now before Congress were formulated.

When the opening of the regular school term forced Dean Potter to return to his duties at Purdue, Mr. Allen W. Horton, Jr., former secretary to President Karl T. Compton of Massachusetts Institute of Technology, came to take up his work as Administrative Assistant in the United States Office of Education. Dean Potter will spend part-time in Washington and will give general direction to the program in engineering schools.

In forwarding proposals for defense training in this area Commissioner Studebaker pointed out that the United States "has about 155 colleges which offer instruction leading to degrees in engineering."

"Engineering colleges can aid in meeting the needs for specialized training in the fields indicated above by supplementing the present undergraduate and graduate engineering programs of study by intensive courses varying in duration from 1 to 6 months. Such intensive short term courses could be made available to engineers who have had the equivalent of at least three years of a recognized standard engineering college course but who lack specialized knowledge in the field in which there is now a shortage of engineers. Thus a civil engineer, through a four months' intensive course, may be prepared to design airplane structures, or a mechanical engineer, through an intensive course of about the same length may be qualified for airplane engine design.

"In the case of commissioned officers of the Army and Navy, intensive refresher courses of one or two months may prove helpful to them in handling problems relating to Diesel engines, high-pressure steam power plants, electric communication, metallurgy, chemistry of explosives, meteorology, and similar fields important to defense."

To shape policies for broader use of our engineering college resources for defense and to assist the U. S. Office of Education in the event the President's proposal meets Congressional approval, Commissioner Studebaker has

appointed the following Advisory Committee on Engineering Education:

Dean A. A. Potter, (Chairman), College of Engineering, Purdue University, Lafayette, Ind.
Allen W. Horton, Jr., (Secretary), Specialist in Engineering Education, U. S. Office of Education, Washington, D. C.
Dr. F. L. Bishop, Secretary, Society for the Promotion of Engineering Education, University of Pittsburgh, Pittsburgh, Pa.
President R. E. Doherty, Carnegie Institute of Technology, Pittsburgh, Pa.
Dean H. P. Hammond, School of Engineering, Pennsylvania State College, State College, Pa.
President W. O. Motchkiss, Rensselaer Polytechnic Institute, Troy, N. Y.
Dr. R. S. McBride, Consulting Engineer, Washington, D. C.
B. W. Woods, Chairman, Department of Mechanical Engineering, University of California, Berkeley, Calif.
Dean Gibb Gilchrist, College of Engineering, Texas A. & M., College Station, Tex.
Dean Thorndike Saville, School of Engineering, New York University, New York City.
President C. C. Williams, Lehigh University, Bethlehem, Pa.

LIBRARIANS ACT TO MEET EMERGENCY: Ways in which librarians, libraries, and library organizations "can serve the national interest in the present emergency" are reviewed by the American Library Association in a statement, "Libraries and the National Emergency," issued August 2. The memorandum considers service for military establishments, industrial preparedness, democracy and its problems, maintaining normal library service, and preservation of the world's cultural materials.

Published to aid librarians in the purchase of useful materials is a new booklist of the American Library Association entitled "Industrial Training for National Defense". Charles M. Mohrhardt, Chief, Technology Department, Detroit Public Library, and other librarians, compiled the booklist, basing selections on subjects mentioned in Commissioner Studebaker's national defense training proposal of May 29. Symbols and annotations help librarians to decide upon suitable books for vocational students, skilled workmen, factory superintendents and foremen, engineers and designers. Single copies of the special defense booklist cost 25 cents; 10 copies $1; 25--$2; 50--$3, and 100—$5. Order from the American Library Association, 520 N. Michigan Ave., Chicago, Illinois.

A MILLION TRAINED WORKERS BY JUNE, 1941: Indications are that regular enrollment in Federally aided vocational schools during the coming year may exceed last year's record registration by 200,000. Following is a breakdown for the four major categories of Federally aided vocational education for the year ending June 30, 1940:

Trade and Industrial	715,239
Agriculture	538,586
Home Economics	741,503
Business Education	90,099
Total	2,085,427

The total contribution of vocational education to the training of mechanical workers during the current school year is approximately as follows:

Summer defense courses	150,000
Winter and spring short defense courses	450,000
Regular trade & industrial courses	750,000
Total	1,350,000

Vocational education proposes to render service to more than a million trained workers before June, 1941.

CULTURAL RELATIONS: U. S. Office of Education cooperates with the Division of Cultural Relations, Department of State in developing a program for exchange of students and professors between United States and governments of other American republics. Five South and Central American countries have already made such exchanges—Chile, Costa Rica, the Dominican Republic, Panama and Venezuela. The exchanges are the result of a belief expressed at the Inter-American Conference for the Maintenance of Peace at Buenos Aires in 1936 that the promotion of cultural relationships is one of the most practical means of developing in the American republics a public opinion that will strongly support the maintenance of peace throughout the Western Hemisphere.

TRADE SCHOOL DIRECTORY PUBLISHED: Trades taught by 1053 all-day public trade and industrial schools and locations of the schools appear in a new 192-page Directory of Federally Aided All-Day Trade and Industrial Education Programs (Misc. 2375) just issued by the United States Office of Education. Copies are available on request.

THE WHITE HOUSE,
Washington, August 24, 1940:

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: I have the honor to transmit herewith for the consideration of Congress a supplemental estimate of appropriation for the Office of Education, Federal Security Agency, for the fiscal year 1941, amounting to $53,000,000.

The details of this estimate, the necessity therefor, and the reason for its submission at this time are set forth in the letter of the Director of the Bureau of the Budget, which is transmitted herewith, with whose comments and observations thereon I concur.

Respectfully,

FRANKLIN D. ROOSEVELT.

Education and training of defense workers, Office of Education: For payment to States, subdivisions thereof, or other public authorities, and where hereinafter authorized to engineering schools and universities, through certification from time to time made by the United States Commissioner of Education to the Secretary of the Treasury of the name of such agency or the name of such engineering school or university and the officer thereof to whom payment is to be made, and the amount to be paid, such payment to be made prior to audit and settlement by the General Accounting Office, for the furtherance of the education and training of defense workers, as follows:

(1) For the cost of vocational courses of less than college grade, provided by such agencies in vocational schools pursuant to plans submitted by such agencies and approved by the United States Commissioner of Education, which plans shall include courses supplementary to employment in occupations essential to the national defense and preemployment refresher courses for workers preparing for such occupations selected from the public employment office registers $36,000,000

(2) For the purchase, rental, or other acquisition of new or used equipment when needed by agencies in providing courses pursuant to a plan approved under (1) of this heading when such acquisitions are in accord with detailed proposals submitted by such agencies and approved by the United States Commissioner of Education: Provided, That the proposals approved by the Commissioner shall include provisions governing the holding of title to and the use of the equipment to be acquired.... $8,000,000

(3) For the cost of short engineering courses of college grade, provided by engineering schools or by universities of which the engineering school is a part, pursuant to plans submitted to them and approved by the United States Commissioner of Education, which plans shall be for courses designed to meet the shortage of engineers with specialized training in fields essential to the national defense: Provided That only engineering schools which operate under charters which exempt their educational property from taxation shall be eligible to receive these funds: And provided further, That not to exceed 20 per centum of the amount allotted to any school shall be allotted to it for expenditure for purchase or rental of equipment for carrying out its approved plan.... $9,000,000

The United States Commissioner of Education shall carry out the purposes of these appropriations under regulations promulgated by him and approved by the President, and there shall be available out of these appropriations an amount determined by the Federal Security Administrator not exceeding 1 per centum of each such appropriation for expenses of administration to enable such Commissioner most efficiently to carry out the purposes of the several appropriations, the total sum to be available for general administration expenses, including printing and binding, equipment and supplies (including purchase of materials and equipment necessary for visual education), salaries for personal services, and rents, in the District of Columbia and elsewhere: Provided, That the Federal Security Administrator may transfer out of the sum available for administration expenses not exceeding $37,500 to the office of the Administrator for use in carrying out the purposes of these appropriations: Provided further, That section 3709 of the Revised Statutes (41 U.S.C. 5) shall not be construed to apply to any purchase with these funds when the aggregate amount involved in such purchase does not exceed the sum of $100: Provided further, That all functions of the Commissioner hereunder shall be performed under the direction and supervision of the Federal Security Administrator.

WHAT MANUFACTURERS AND LABOR LEADERS SAY

Following statements of need for defense training and the place of vocational schools in that training have been received at the United States Office of Education:

"THE EMERGENCY TRAINING OF LARGE NUMBERS OF DEFENSE WORKERS IS AN ESSENTIAL PART OF TOTAL NATIONAL DEFENSE. THE CONTINUANCE OF THE FEDERAL EMERGENCY PROGRAM NOW OPERATING IN THE STATE OF WASHINGTON UNDER THE STATE BOARD FOR VOCATIONAL EDUCATION IS VITAL TO THE AIRCRAFT INDUSTRY. (SIGNED) H. O. WEST, ASSISTANT TO THE PRESIDENT, BOEING AIRCRAFT COMPANY, SEATTLE, WASHINGTON."

"IN ORDER THAT WE MAY SUCCESSFULLY CARRY OUT OUR PRODUCTION SCHEDULES DURING THE NEXT TWELVE TO EIGHTEEN MONTHS, IT IS ESSENTIAL THAT THE VOCATIONAL TRAINING SCHOOLS OF THIS COMMUNITY BE EXPANDED TO INCLUDE A CONSIDERABLE NUMBER OF STUDENTS IN SHORT TERM SPECIALIZED COURSES APPLICABLE TO THIS INDUSTRY. (SIGNED) MATTOON, CURTIS WRIGHT CORPORATION, BUFFALO, NEW YORK."

"WASHINGTON STATE APPRENTICESHIP COUNCIL ENDORSE NATIONAL PROGRAM OF VOCATIONAL TRAINING FOR DEFENSE WORKERS AS CARRIED ON IN THE STATE OF WASHINGTON AND SUPPORTED BY FEDERAL FUNDS. WE REGARD THIS PROGRAM AS A VITAL PART OF NATIONAL DEFENSE AND ITS CONTINUANCE IS INDISPENSABLE TO DEFENSE INDUSTRIES IN THIS COMMUNITY. (SIGNED) HOMER BERGREN, CHAIRMAN, WASHINGTON STATE APPRENTICESHIP COUNCIL, SEATTLE, WASHINGTON."

"VOCATIONAL TRAINING FOR DEFENSE WORKERS IN THIS LOCALITY IS EFFICIENT AND EFFECTIVE. IT HAS OUR UNQUALIFIED APPROVAL AND WE REGARD THIS PROGRAM AS ESSENTIAL TO THE NATIONAL WELFARE. ITS CONTINUANCE IS ABSOLUTELY NECESSARY TO LOCAL DEFENSE INDUSTRIES. (SIGNED) H. D. HEALEY, SECRETARY, WASHINGTON METAL TRADES, INC., SEATTLE, WASHINGTON."

24 HOUR SCHEDULE FOR SCHOOLS IN 18 CITIES

Schools in many cities are offering 24-hour-a-day use of machine shop facilities for pre-employment refresher courses.

Among these cities are the following:

Boston, Massachusetts
Wichita, Kansas
Buffalo, New York
Newark, New Jersey
Dallas, Texas
Tulsa, Oklahoma
Springfield, Massachusetts
Bayonne, New Jersey
Lowell, Massachusetts
Richmond, Virginia
Philadelphia, Pennsylvania
Orange, New Jersey
Norfolk, Virginia
Hartford, Connecticut
Rochester, New York
Utica, New York
Camden, New Jersey
Washington, D. C.

BOSTON: Schools are cooperating with the Navy Yard, training machine helpers. Students work on materials going into destroyers. The South Boston High School recently went on a twenty-four hour basis by including a midnight shift. Five hundred twenty-five students including Navy apprentices and W.P.A. enrollees are being trained for specific machine shop jobs. Some of the instructors in the courses work an eight hour shift at the Watertown Arsenal, then teach eight hours in the pre-employment defense courses. Contents for the courses are being worked out in cooperation with the Navy, and Navy standards are used for inspection of materials produced by the students. The teachers were at first skeptical that this plan would work out, but are now reported enthusiastic for the plan. The test of the effectiveness of the work done by the trainees in the Boston courses is that it has to be good because it must pass inspection by the Navy.

PHILADELPHIA: Nearly 100 workers who were formerly employed in the full fashioned hosiery industry here and who formerly had machine shop experience are now being given pre-employment refresher courses. These workers were placed in training after the Textile Workers Union of America had made a voluntary survey of its unemployed membership.

BRIDGEPORT, CONN.: Courses in parachute making have been included in the national defense training program here. Girls and women are learning to do precise tasks including testing of cords and silk materials, making patterns, and folding parachutes. They expect to be placed in jobs in Bridgeport's aviation industry. Many thousands of parachutes will be needed for the equipment of airplanes for the Army and the Navy. Materials testing and parachute making are delicate operations requiring great skill.

COORDINATING DEFENSE ACTIVITIES: Defense training programs have been developed in close cooperation with the National Defense Advisory Commission. Of the following group of Commissioners Mr. Sidney Hillman is especially charged with problems relating to the recruitment and training of labor.

Ralph Budd, Transportation
Chester Davis, Agriculture
Harriet Elliott, Consumer Protection
Leon Henderson, Price Stabilization
Sidney Hillman, Labor and Labor Supply
Floyd Reeves, Executive Assistant
William S. Knudson, Production
Edward R. Stettinius, Jr., Industrial Materials

USE RADIO FOR NATIONAL DEFENSE: Radio scripts on the rise of democracy are available without charge from the Educational Radio Script Exchange, U. S. Office of Education, Washington, D. C. Local educational broadcasting groups can cooperate with their community radio stations in producing programs which inspire loyalty and unity. Write for the special list of "Radio and National Defense" scripts.

VOCATIONAL BOARD MEETS: Members of the Federal Advisory Board for Vocational Education meeting in the Office of Education September 6, 1940, received a report of the regular and emergency activities in Federally aided vocational schools. The following attended:

Dr. Clarence Poe, (Chairman), Editor, The Progressive Farmer, Raleigh, N. C., representing Agriculture.
Miss Frances Perkins, Secretary of Labor.
Dr. N. H. Engle, Coordinator of University Research, Bureau of Foreign and Domestic Commerce, representing the Secretary of Commerce.
Dr. Mordecai Ezekiel, Economic Adviser to the Secretary of Agriculture, representing the Secretary of Agriculture.
Dr. Paul H. Nystrom, Limited Price Variety Stores Assn., New York City, representing Manufacturing and Commerce.
Mr. Henry Ohl, President, Wisconsin Federation of Labor, Milwaukee, Wis., representing Labor.
Dr. John W. Studebaker, U. S. Commissioner of Education.

COMMITTEE OF NINE: Plans for a vocational defense training were canvassed with the standing Trade and Industrial Education Advisory Committee on July 1. This committee has worked with the Office of Education since 1936 and is helping to guide the defense training program. Its members are:

John P. Frey, American Federation of Labor, Washington, D. C.
George L. Googe, Southern Representative, American Federation of Labor, Atlanta, Ga.
Emil Rieve, General President, American Federation of Hosiery Workers, Philadelphia, Pa.
John H. Zink, President, Heat and Power Corporation, Baltimore, Md.
Max Meyer, Sterling National Bank, New York, N. Y.
T. J. Thomas, Vice President, Chicago, Burlington and Quincy R. R., Chicago, Ill.
B. H. Van Oot, State Supervisor of Trade and Industrial Education, Richmond, Va.
R. O. Small, State Director for Vocational Education, Boston, Mass.
Mrs. Betty Hawley, Secretary, Advisory Board, Trade and Industrial Education, Board of Education, New York, N. Y.

RESOURCES FOR DEFENSE: In a recent report to the Bureau of the Budget, Commissioner John W. Studebaker summarized the trade school resources which could be used for defense worker training. This report is a measure of the sound growth of Federally aided vocational trade and industrial education since 1917:

"1. There are now in operation in the country 1,053 public trade schools whose courses have been approved for Federal financial aid under existing vocational education acts.

"2. The capital investment in these school plants approximates $1,000,000,000, one-half of which is in equipment.

"3. These schools engage regularly for full-time service as instructors in trades essential to national defense more than 5,000 men, skilled craftsmen who have been trained to teach.

"4. In the State and local departments of education there are approximately 1,000 trained and experienced trade and industrial education supervisors whose business it is to plan, develop and administer throughout their States and local communities thoroughgoing and modern programs of trade and industrial education.

"5. Without interference with the regular program of day trade-preparatory classes and of evening trade-extension classes, program devices have been developed that will permit an intensive use of these school facilities."

PHOTOGRAPHS AND CLIPPINGS WANTED: One of the Office of Education's duties is to report to Congress, the President and the people. Statistics do not tell the whole story. Splendid photographs of the defense training program in action have come in from Los Angeles, Pasadena, Sacramento, San Diego and San Jose in California, Bridgeport, Conn., Wilmington, Del., Chicago, Ill., Indianapolis, Ind., Worcester, Mass., Detroit, Mich., St. Louis, Mo., Elizabeth and Newark in New Jersey, Wahpeton, N. D., New York, N. Y., Canton, Cincinnati, Cleveland and Toledo in Ohio, Pittsburgh and Philadelphia in Pennsylvania, Seattle, Wash., Charleston, W. Va., and La Crosse, Wis. We need photographs that (1) show action, (2) clear, sharp prints, (3) close up views. Please send prints direct to William D. Boutwell, Office of Education.

RECENT OFFICE OF EDUCATION PUBLICATIONS

Teaching Conservation in Elementary Schools; 1938 No. 14. 20¢
Conservation Excursions; 1939 No. 13. 15¢
Curriculum Content in Conservation; 1939 No. 14. 15¢
Conserving Farm Lands; Vocational Division 201. 30¢
Residential Schools for Handicapped Children; 1939 No. 9. 15¢
Educational Directory; 1940 No. 1
Statistics of Public High Schools (Biennial Survey); 1940 No. 2, Chap. V. 15¢
Guidance Program for Rural High Schools; Vocational Division 203. 10¢
Know Your State Educational Program; Leaflet No. 55. 5¢
Education in the Union of Soviet Socialist Republics and in Imperial Russia; Leaflet 28. 5¢
Occupational Information and Guidance—Organization and Administration; Vocational Division 204. 25¢
Veterinary Medicine; Guidance Leaflet No. 18 (Revised 1940). 5¢
List of Publications, United States Bureau of Education, 1867-1910; 1910 No. 3 (Reprinted 1940). 10¢
Federal Laws and Rulings Relating to Morrill and Supplementary Morrill Funds for Land Grant Colleges and Universities; Pamphlet No. 91. 5¢

These publications may be ordered from the Superintendent of Documents, Government Printing Office, Washington, D. C.

The latest Price Lists of U. S. Office of Education publications (bulletins, pamphlets, etc.) are available for the asking. Write U. S. Office of Education, Washington, D. C.

PRESERVING WHAT WE PREPARE TO DEFEND

by
John W. Studebaker
U. S. Commissioner of Education

Perhaps the greatest challenge that confronts America today is to prove that democracy can generate and maintain the energy and efficiency which are necessary in meeting the requirements of total preparedness. We continue to believe that in the long pull efficiency is the result of released individual initiative, imagination and leadership, and that organizations can be democratically operated without being cumbersome and inefficient.

Happily, there are many evidences here in Washington of studied efforts to avoid the creation of clumsy, unnecessary organization. Frequently in times of emergency the momentum of greatly expanded demands piles up complicated, sprawling, super-imposed organizations which inevitably result in much duplication of work, wasted effort, and such a maze of unexpected checks, approvals, reconsiderations and conflicting purposes as to frustrate and render relatively futile the service of many exceedingly competent persons.

Facing the gigantic tasks which have been suddenly thrust upon our Government by chaotic world conditions, the Advisory Commission to the Council of National Defense has assumed its responsibility of developing the broad outlines of a complete and well-balanced program of total preparedness, is rapidly delineating the objectives of the program, and is organizing the necessary general policies. Fortunately the Commission has not attempted to set up machinery to administer any part of the program which naturally fits into the purposes and functions of other agencies of the Government, and it is obviously making every effort to stimulate these agencies to the fullest possible participation and usefulness. Likewise, it is the policy of the central office of the Federal Security Agency to liberate the energies of its constituent units. Here we see a great democracy consciously working to keep its organization as simple as possible, and steadily increasing its effectiveness through the direct and definite placement of responsibility. This policy is indeed one of the most effective refutations of the claims of dictatorship that democracy is necessarily clumsy and inept.

Representing one of the agencies involved in the general program of defense, I wish to record for the Office of Education our commendation of this policy of the Defense Commission, and especially of the wisdom with which the problem has been handled by Mr. Sidney Hillman, the member of the Commission with whose work this Office, through the Federal Security Agency, has been most closely associated.

The automatic effect of the policy is to create a growing sense of responsibility at each level and point of the colossal Government machine. While the staff members of this Office are pooling their judgments and are working with representatives of other agencies in close collaboration whenever necessary to establish sound policies, every move is tested by the essential need for speed and efficiency in administrative action. A recent record indicates the extent to which the general policies and the practices of this Office have been effective.

June 23, 1940:	Congress appropriated $15,000,000 for a summer training program in schools and colleges.
June 26:	Conference in this Office of State representatives of vocational education.
June 27:	President Roosevelt signed the appropriation act.
July 1:	A number of schools from coast to coast were in operation.
July 15:	30,000 men were in training.
July 31:	80,614 men in training in 41 States.
August 31:	92,471 men in training in 44 States.

This record is a tribute to the thoroughgoing organization of American education in the States and local communities. It is a demonstration of the incalculable power of the vast democratic organization of education which went into action on a few days' notice. It is an evidence of the indispensability of our schools and colleges in meeting the practical necessities of a great emergency.

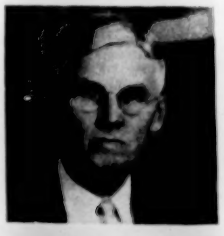
As this Nation moves forward in the development of the program of preparedness we will do well to make distinctions between the emergency needs which of necessity require special and centralized organization, and those which can be met by increasing the load of responsibility for existing agencies. Public education is one of those existing organizations which can operate within the framework of the democratic tradition. And it can operate more efficiently than hastily improvised organizations. Moreover, in assigning emergency educational responsibilities to organized education, we confirm the faith of our people in their democratic institutions.

It has been inspiring to observe this quick response of organized education to the national call for immediate service. This response should increase the confidence of all citizens in the abilities of educators to meet crises through democratic processes.

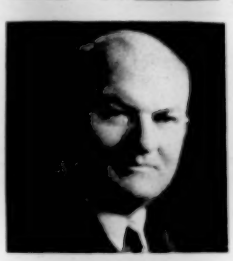
MEN BEHIND DEFENSE TRAINING PROGRAM

The national defense program has placed additional responsibilities upon U. S. Office of Education staff members. Heaviest burdens in administering vocational and engineering school defense training programs fall upon Commissioner Studebaker and five associates.

CYRIL F. KLINEFELTER, Assistant to the Commissioner: During the summer months he has been at Commissioner Studebaker's right hand helping to frame policies and iron out administrative problems. To his desk come requests for various types of service from Congress, the Bureau of the Budget, Federal Security Agency, and the National Defense Advisory Commission. He handles U. S. Office of Education personnel and budget affairs and in general relieves the Commissioner of many pressing problems.



FREDERICK J. KELLY, Chief, Division of Higher Education: In this, his tenth year of service in the U. S. Office of Education, Dr. Kelly is now engaged in one of the most challenging activities of his long educational career. How will the selective service affect college enrollments? How can the training and equipment resources of colleges and universities serve Government and industry? Dr. Kelly is helping college and university presidents, deans, and other school officials make the fullest and best possible contributions to national defense, especially through engineering schools.



J. C. WRIGHT, Assistant Commissioner for Vocational Education: Lining up the country's trade schools to train thousands of persons for occupations essential to national defense is not a new job to Dr. Wright, Director of the Federal Board for Vocational Education, (1922-1933), and Assistant Commissioner for Vocational Education since that date. He trained workers for World War I when Federal aid to vocational education began in 1917. During July and August Dr. Wright directed the organization of the greatest summer-time program of job training in the Nation's history.

LAYTON S. HAWKINS, Chief, Trade and Industrial Education Service: A member of the Federal Government's vocational education staff during World War I, Mr. Hawkins brings to his position as defense trade-training administrator a wealth of much-needed experience. Since his World War work in Washington, Mr. Hawkins has held many executive positions, chief of which have been with the United Typothetae of America, Lithographic Technical Foundation, Rossman Corporation, Cement Floor Contractors Association of New York City, American Association for Adult Education, and New York State Department of Education.

ANDREY ABRAHAM POTTER, Consultant in Engineering Education: Devoting his summer vacation period to national service, Dean Potter of Purdue University worked with Army, Navy and Defense officials locating personnel bottlenecks and the engineering schools to eliminate the bottlenecks. During World War I, he was associate member of the U. S. Naval Consulting Board. This year he received the profession's highest award--the Lamme Medal, for achievement in engineering education. Dean Potter continues as part-time consultant on the engineering college defense training program, assisted by Allen W. Horton, Jr., who has joined the Office of Education staff as administrative assistant to Dr. Kelly.

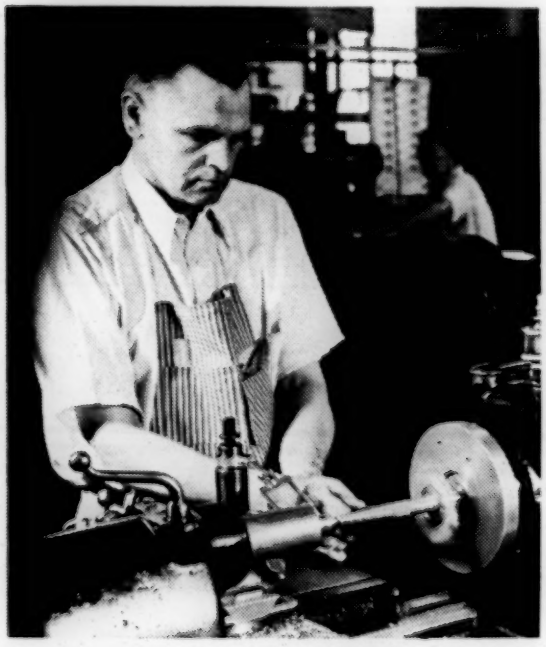
ENROLLED FOR DEFENSE TRAINING

Here are some of the army of more than 100,000 who are preparing themselves for work in defense industries.

New York Vocational High Schools

SHIPYARDS NEED WELDERS

There are good machinists on WPA. Long unemployment leaves them rusty and unfamiliar with new methods and new materials. They may be assigned to defense trade training refresher courses while remaining on WPA rolls. In many instances training for a week or two has been sufficient to help such men back into industry. More than 20,000 trainees are from WPA.



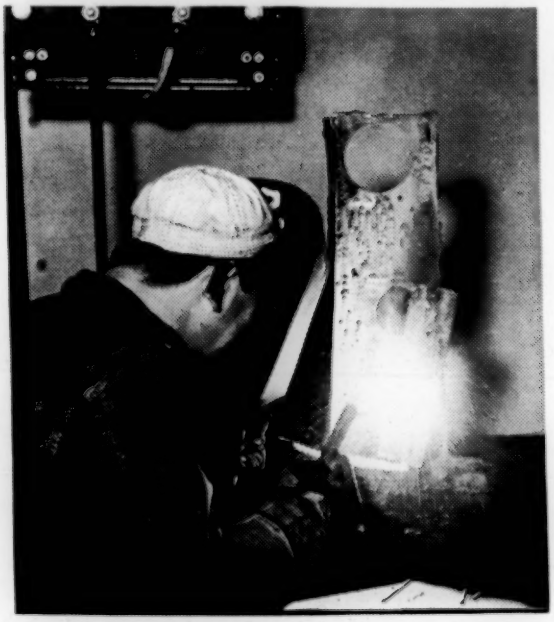
San Diego Vocational High Schools

AVIATION INDUSTRIES CALL FOR YOUNG MEN

Young men 18 years or over, registered for employment at the local public employment office, enter the defense training program. Preference is given to young men with previous industrial experience. Often they are high school graduates. Some are technical college graduates. Many are boys who have had a variety of short time jobs and now see in defense training an avenue to more permanent work with broader opportunities. Here a San Diego teacher shows two trainees how to hammer home airplane rivets.

INDUSTRY CALLS FOR MANY SKILLS

This man is learning how to splice wire cable. Courses are adapted to needs of local defense industries. Typical of more than 250 courses offered are: Machinist, tool and die making, lathe, drill press, aviation mechanics, sheet metal worker, airplane woodwork, motor winding, radio mechanics, code and transmitter operation, drawing, drafting, blue print reading, pattern making, forging, foundry, marine gas engine work.



New York Vocational High Schools

EMPLOYED WORKERS BACK FOR MORE TRAINING

More than 33,000 men already employed eight hours per day in defense industries return for supplementary courses to broaden their range of skills or learn about new materials and new methods. A man who knows how to operate a lathe comes back to learn welding. An auto mechanic wants to learn airplane mechanics. Industry increases its demands for men who can double in the skilled trades.

Burgard Vocational High School
Buffalo.

Exhibit I

STATE OF CONNECTICUT • DEPARTMENT OF EDUCATION

BUREAU OF VOCATIONAL EDUCATION
STATE TRADE SCHOOL • HARTFORD

Sept. 19, 1940

Course Outline
Classes for Inspectors (Girls)
at
P. & W. Aircraft Div.

* * * * * * *

Hours	Math.	
8	Addition-Fractions	
	Fractions to Decimals	
	Scale Reading	
8	1/8 1/16 1/32 1/64	
	Thread Sizes	
	Hole Sizes	
	Finish Marks on Drawings	
	Blueprint Reading	
	Lettering	
	Dimensioning	
20	Problems 201-216	Three Views
30	" 241-255	" "
	Micrometer Reading	
4	Calipers	
	Vernier	
	Indicator	
70		72 hours (classroom) two 2hr. classes per week 18 weeks

Exhibit II

SPRINGFIELD TRADE SCHOOL

SPRINGFIELD, MASS.

PROGRESS RECORD

GIRLS' DIVISION **ELECTRICAL DEPARTMENT**

Production Winding, Soldering, Assembling, Inspection, Condenser Winding

	Acquaintance	Some Proficiency	Proficiency
UNIT 1 SOLDERING			
Cleaning and Care of Iron ✓			
Burring by Machine ✓			
Soldering Ground Connections ✓			
Soldering Leads ✓			
Soldering Joints			
Cleaning and Preparing work			
Flux - Metals			
UNIT 2 STATOR WINDING			
Insulation and Materials ✓			
Wire Gauge ✓			
Winding by hand ✓			
Gun Winding			
Testing			
UNIT 3 ARMATURE WINDING			
Insulation and Materials			
Wire Gauge			
Winding by hand			
Winding by machine			
Testing			
Repairing Shorts and Grounds			
UNIT 4 SHORT WINDING OPERATIONS			
Skein Winding			
Form Coil			
Taping			
Connecting			
Welding Connections			

	Acquainance	Some Proficiency	Proficiency
UNIT 5 COIL WINDING			
Insulation and Materials			
Operation of Machine			
Type Windings			
Connections			
UNIT 6 ASSEMBLING			
Riveting Machine			
Bolt and nuts			
Assembly Tools			
Locking			
UNIT 7 INSPECTION			
Blue Prints +			
Scale - Vernier gauges +			
Micrometer + Inside + Out			
Limits - Fractional Wire gauges			
Gauges - Snap Thread Plug			
Inspection of Materials			
Indicators - Sclerscope			
UNIT 8 CONDENSER WINDING			
Operation of Machine			
Materials			
Testing			
Connecting			

Name .....

Age .....

Date Entered .....

Date Left .....

Employed By .....

Employed As .....

8-3-40

PRATT & WHITNEY AIRCRAFT
PART-TIME TRADE EXTENSION COURSE
CONNECTICUT STATE TRADE SCHOOL

40 weeks x 4 hours x 4 years = 640 hours

B/P Reading some freehand sketching and lettering	30 hours
Machine Drawing	120 "
Shop Mathematics	260 "
Theory of the Trade Machine & Electrical	230 "
	640

4th. year: to suit work and requirements of apprentice.

Arithmetic: review where necessary
Fractions, Decimals, Denominate Numbers
Equations and Graphs

Lathe Mathematics
Cutting speeds
Cutting Feeds
Taper turning calculations
Taper turning set over
Simple gearing for thread cutting
Compound " " " "

Milling Machine Mathematics
Use of constants: Square, Hexagon, octagon
Cutting speeds
Cutting feeds, cutting time
Simple, compound, and differential indexing
Spiral milling

Drilling Machine Mathematics
Tap drill sizes, speeds and feeds
Thread shapes and computations

Shaper Mathematics
Feeds
Angles
Lever-clamping applications
Average speed, cutting time

Algebra thru quadratics-graphs

Mechanism, Elementary
Speed ratio for gears
Simple gear trains
Compound " "
Pulley calculations
Calculations of compound belt drives

P. T. X. Course, continued (2)

Power of belting; millwrights rule
Power transmitted by belting, friction theory
Compound indexing

Mensuration: shop problems with reference
Angles
Triangles
Polygons
Circles
Circle areas
Prism, cylinders
Pyramids
Weight of material

Plane Geometry, Mathematics
Shop Applications

Shop Trigonometry: right triangles
Functions of angles
Shop problems covering
Layouts
Tapers, dove tails
Circles
" and tapers
Threads and tangents
Helix angles
Oblique triangles

Plane Trigonometry and Logarithms
Thru identities

Estimating (speeds & feeds) Advanced
Latho, Milling Machine, Planor & Shaper, miscellaneous

Mechanism, Advanced
Motion, Velocity
Belting
Pulleys
Power
Cams
Link motions
Tooth Gearing systems
Intermittent motions
Gear trains

Gear Tooth Calculations

Industrial Electricity
Course I
" II

Materials of Construction

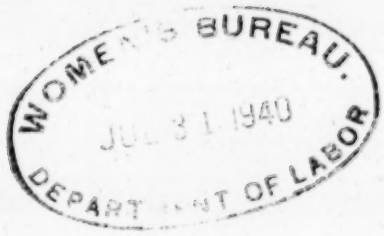
Heat Treating - Elementary

FEDERAL SECURITY AGENCY

NATIONAL YOUTH ADMINISTRATION

2145 C STREET NW., WASHINGTON, D. C.

July 30, 1940



Miss Bertha Nienburg
Acting Director of Women's Division
Department of Labor
Washington, D. C.

Dear Miss Nienburg:

We are, at the present time, working on plans toward the establishing of industrial projects for girls so that the young women on our program may receive training which will prepare them for jobs in such industries as are opening up or expanding in the defense program.

We shall appreciate whatever cooperation you can give us along the following lines:

Informing us on the types of work which women can do most effectively and on the working condition under which this work should be done.

Obtaining an understanding with the trades unions so that no work is undertaken contrary to their basic philosophy.

Sincerely yours,

John H. Lasker

John H. Lasker, Director
Division of Work Projects

FEDERAL SECURITY AGENCY

NATIONAL YOUTH ADMINISTRATION

2145 C STREET NW., WASHINGTON, D. C.

July 19, 1940

WOMEN'S BUREAU.
JUL 20 1940
DEPARTMENT OF LABOR

Miss Mary Anderson,
Director,
Women's Bureau,
U. S. Department of Labor,
Washington, D. C.

Dear Miss Anderson:

Mrs. Leach has sent me your letter to her regarding the NYA conference on unemployed young women.

I am especially interested in your suggestion that NYA projects be developed which may put young women in line for work in those factory operations concerned with national defense. I hope very much to have a chance to talk with you further about this before very long.

Very truly yours,

Aubrey Williams,
Administrator.

PRATT AND WHITNEY AIRCRAFT 7-10-40

Machinist & Toolmaker Apprentice Training Course

- - - - - - -

SCHOLASTIC REQUIREMENTS	High School Diploma. I.Q. and M.A. tests used. Subjects necessary: Four years Mathematics - including Algebra, Plane and Solid Geometry and Trigonometry, One year of Chemistry and one year of Physics.
AGE LIMITS	Eighteen to twenty-one years old.
PHYSICAL REQUIREMENTS	Good physical condition. Thorough and complete examination by company physician.
TIME REQUIRED	Three years for Machinist. Four years for Toolmaker.
SCHOOL ROOM WORK	Four hour classroom study periods will be provided each week, to be divided into two sessions of two hours each for the study of shop mathematics and related shop work as set up by the P.T..X. division of the Connecticut State Trade School. The hours spent in said classroom study will constitute working hours and will be during the regular working period.
PROBATION PERIOD	Three months.
SIGNING OF APPRENTICE AGREEMENT	By Apprentice, Guardian and Company when accepted for training.
WHERE TRAINED	In various manufacturing departments, on first and second shifts.
WHEN CHANGED	Every twelve weeks.
HOW TIME IS COMPUTED	Given credit for all hours worked, but lost time must be made up.
BONUS	Upon satisfactory completion of Apprenticeship, the company pays a substantial bonus to each Apprentice.
EXAMINATION	By classroom instructor, every three months.
SUPERVISION	Under constant supervision of Apprentice Supervisor.
CREDIT FOR PREVIOUS EXPERIENCE	For previous experience in machine shops, but not beyond six months of training.
REPORTS	Each Semester, to Apprentice's Guardian.
RATE CHANGE	Every thousand hours.

EXTENSION EDUCATIONAL COURSE	Any apprentice, after successfully finishing six months, shall have the privilege of taking the Extension Engineering work as set up by the University of Connecticut. The cost of this course shall be divided equally between the Company and Apprentice. This work must be done on Apprentice's own time after working hours. This consists of six hours per week divided into three two hours sessions.
CHANGING FROM MACHINIST TO TOOLMAKER, OR VICE VERSA	Can be done by proper application, passed on by Apprentice Committee.
CERTIFICATES AWARDED	At completion of three year machinist course or four year toolmakers course.
TOOLS	Tool Box and machinist tools furnished by company and repaid by Apprentice in weekly installments.
PERSONNEL OF COMMITTEE	APPRENTICESHIP COMMITTEE: General Superintendent Assistant Factory Manager Supervisor of Experimental Machine Shop Apprentice Supervisor - Acting as Chairman
DUTIES	To select candidates for training. To pass on all matters pertaining to training. To meet once a month, or at call of chairman.
REMARKS	All training is scheduled for manufacturing departments and Apprentices work on regular production work. Toolmaker Apprentices will spend the equivalent of one year in the Toolroom.
APPRENTICES SOCIAL ORGANIZATION	Apprentices have a purely social organization in which the Management has no part; it is managed by a duly elected set of officers of their own group. Meetings are held monthly. The group arranges evening meetings at which officials and qualified experts talk to them along matters relating to their work, as well as for purely social events. Two complete engines, a single and a double row, have been assigned to classroom for the use of apprentices, on which they work, on their own time. Visitation to other plants arranged by Apprentice Group.
REMARKS	Plan started March, 1936. Based on the rigid requirements for selection and the course, itself, it is hoped that a large portion of the group will develop into shop executives or leaders in due course of time.

APPRENTICE SCHEDULE

BENCH

Filing, Burring, Hand Tapping, Flexible Shaft Burring.

DRILLS

Single Spindle, two Spindle, Three Spindle, four Spindle, Single Spindle High Speed, Back Spotting, Special Drills, Small Radl, Large Radl, Small Radl Tapping, Multiple Spindle Drills.

MILLING

Vertical, Horizontal, Two Spindle, Special Millers, Hand and Power Millers, Automatic Millers, Slotting and Key Milling, Spline Milling.

LATHES

Rough and Finish Turning, Taper work, Internal and External Thread Cutting.

TURRETS

Gisholt, Jones & Lamson, Potter & Johnson, Bar and Chuck work.

SCREW MACHINES

Hand Screws all types, Brown & Sharp Automatic.

LAYOUT WORK

Layout Castings and Forgings from Blueprint for Machining.

GRINDING

Internal, External, Surface, Centerless and Gear Grinding on all types of machines.

BORING MILLS

Vertical, Horizontal and Diamond Boring,
Bullard, Niles, American and Lucas.

BROACHING

LaPoint Broaches, large and small

APPRENTICE SCHEDULE

GEAR CUTTING

Brown and Sharp, Fellows, Gleason Generators.

HEAT TREAT

Pack Hardening, Case Hardening, Oil and Water Quenching, Drawback, Hardness Testing on all types of apparatus.

PLATING

Lead, Copper, Silver, Cadium, Methods and solutions.

MOTOR ASSEMBLY

Small Parts, Green Assembly, Final Assembly, Teardown and packing.

ENGINEERING

Blue Print, Tracing and Engineering Records.

FOURTH YEAR FOR TOOLMAKERS

In Tool Room on all types of Jig and Fixtures and Machine Repair. Three years on regular Apprentice Schedule.

APPRENTICE SCHEDULE HOURS

	Approximate Hours
Bench	200
Drills	400
Milling	400
Lathes	400
Turrets	480
Screw Machine	400
Layout	200
Grinding	600
Boring Mills	400
Broaching	100
Gear Cutting	600
Heat Treat	300
Plating	200
Motor Assembly	380
Engineering	400
	5,460
	540 P.T.X.
	6,000 hours-Three Year Total

WORK OPPORTUNITIES IN THE METAL TRADES IN GREATER PROVIDENCE

A Monograph

prepared by

F. Sheldon Davis

Metal Trades Coordinator

Department of Public Schools

Providence, Rhode Island

June, 1940

WORK OPPORTUNITIES IN THE METAL TRADES IN GREATER PROVIDENCE

A report to the Advisory Committee and to the Supervisory Staff

The material for this monograph has been collected from the metal trades plants in Providence by interviews with superintendents, foremen, machinists, and machine operators, through library research, information secured from the Metal Trades Association, and from Federal and State government statistics.

In order to obtain this information, a teacher of the metal trades in the secondary schools was relieved of his instructional duties and assigned to the task for one year, his teaching schedule being filled by a substitute. Since the task involved occupational and curriculum research, it was performed under the supervision of the Assistant Superintendent in charge of Research and Guidance.

A BRIEF HISTORY OF THE METAL TRADES

Man has always been searching for power. In the early days he domesticated animals such as the horse, the ox, the elephant, the camel, and even the dog for use in lightening his work.

It is related that Hero built the first steam engine in 130 B. C., yet it was eighteen hundred years later that Watt made a practical steam engine, and it was sixteen years after the idea of the steam engine was suggested to Watt before he could build a full-size engine because of the lack of a machine to bore a cylinder six inches in diameter and two feet long. When John Wilkinson, a machinist, had succeeded in developing an efficient boring machine, the first steam engine was built.

The history of machinery dates back to Biblical days. Philo, of Byzantium, a writer of the second or third century, B. C., described the tools and machines of that day and told of work being turned on the lathe, which was merely an adaptation of the potter's wheel. It was not until about 1700 that the first belt-driven lathe is mentioned. Today the lathe is used for many things, from making parts for watches to the manufacturing of the largest naval guns. The history of machinery and the needs of man have advanced together.

The first manufacturing of metal in Rhode Island was done in the extensive iron works established before King Philip's War by Joseph Jenks on the Providence side of the Blackstone River at Pawtucket Falls. The next iron industry was the anchor forge established by the Greene family on the Potowomut River between 1720 and 1730. About 1735 the first apparently successful foundry was erested by Samuel Waldo on the Pawtuxet River and called the Hope Furnace. This foundry used Rhode Island bog iron ore mostly, mixing it with ore imported from Pennsylvania. In 1738, Hugh Orr introduced the manufacture of axes into Rhode Island, and in 1762, Daniel Jackson started the first brass foundry in Providence. In 1775, Oziel Wilkinson, who had an extensive black-smithing establishment at Union Forge, now Manville, manufactured the first cold-cut tacks known in this country, and later the Wilkinsons developed the cold-cut nail.

During the Revolutionary War cannons, guns, muskets, swords, and pistols were made in Rhode Island. After the War, in 1787, Daniel Anthony and three other mechanics made a thirty-two spindle spinning frame which was operated by hand power, and made the first thread ever spun in this state by means other than the spinning wheel. Three years later Samuel Slater, who had been employed in England by the manufacturers of the Arkwright spinning machines, came to this country. He was hired by Moses Brown to operate Anthony's spinning frame but pronounced it

worthless. Mr. Brown then commissioned Slater to build from memory a machine similar to the Arkwright spinning frame. This machine made the first cotton thread ever spun by water power in the United States. In 1790, David Wilkinson invented a machine for the manufacture of screws.

About 1812 the Providence Woolen Company installed steam for motive power, using wood for fuel. It was the first plant in the city to use this method which proved to be too expensive; but with the introduction of coal as fuel the use of this type of power rapidly increased.

Elijah Ormsbee of Providence tried to develop a steamboat, but the first one to enter Providence harbor was the steamer "Firefly," from New York, in 1817. The engine was cumbersome and the expense for fuel was so great that the steamer could not compete with the sailing packets. In 1822, steamers began to run between Providence and New York, making the passage in twenty-three hours and using fourteen cords of wood per trip. John Babcock at this time was working on his improved engine and boilers with which, in 1826, he was able to propel the steamer "Babcock" from Newport to New York, using only one and three-quarters cords of wood and attaining a higher rate of speed. This was the beginning of steam engine manufacturing in Rhode Island.

In 1837 the New England Screw Company was organized, and shortly after that the Eagle Screw Company was formed. These plants were absorbed in 1860 by the American Screw Company which has since controlled the manufacture of wood screws for this country.

In 1831, Joseph R. Brown began the manufacture of small tools and lathes. In 1853 he admitted as a member of the firm a former apprentice, Lucian Sharpe, and changed the firm name to Brown and Sharpe which is known throughout the world.

The Providence Steam and Gas Pipe Company was started in 1850, and in 1869 Mr. Grinnell became associated with the company and developed the Grinnell system of automatic fire extinguishers. The firm name now has become the Grinnell Company.

About 1858, Nicholson and Brownell commenced the manufacture of jeweler's tools and light machinery, and in 1864, Mr. Nicholson incorporated the Nicholson File Company which is known today as the leading file manufacturing company of the country.

From these beginnings we have the present manufactures which have caused Rhode Island to be known as a center of the metal trades industry in the United States and throughout the world.

IMPORTANCE

The machine tools of today are an outgrowth of three mechanical principles that were known to the ancients:

The first of these, the lever, was known to Archimedes, the Greek mathematician, who said, "Give me a lever long enough and I will move the world."

The second principle was that of the axle and wheel which is so old that we may only conjecture as to who discovered it.

The third principle was the inclined plane which, as civilization advanced, took shape in the form of the screw.

An analysis of any of the simple or intricate machines of today,--the high speed printing press, the aeroplane, the automobile, or the lowly can opener,--will disclose that they are all based upon one or more of these three principles.

The claim is often made that because machines produce so rapidly many people are thrown out of work. As a matter of fact, without machinery the world would return to the pre-historic conditions of the Stone Age. There would be no lights, transportation would stop, coal could not be delivered, gas would be shut off, looms would be stopped. The truth of the matter is that by the development of machinery luxuries can be produced at a price that the ordinary worker and his family can afford. Formerly only a few wealthy people could own such things as beautiful clothes, automobiles, sewing machines, modern homes, etc. Therefore, machines have actually raised the standards of living, reduced the costs of both luxuries and necessities, and created huge industries which furnish employment to thousands of workers.

The machinist is the man who creates and builds the machines that perform these marvelous operations for us.

NUMBER OF WORKERS ENGAGED IN THE OCCUPATION

The number of workers in the metal trades varies with the business index. For instance, the Rhode Island State Census of 1936 lists 6,500 workers employed gainfully in the metal trades industry, while the State of Rhode Island Department of Labor monthly report for November, 1939, lists 12,918 workers gainfully employed in this field, showing a one hundred per cent. increase in employment between a depression year, 1936, and a boom year, 1939. Employment in November, 1939, is also thirty-six per cent. higher than in November, 1938. The rapid increases, however, occur in the beginning jobs which do not require long periods of training.

NEED FOR WORKERS

At the present time, May, 1940, there is a scarcity of workers due to the great number of machinists and tool makers employed in government ordinance work and also to the large orders for aeroplanes, trucks, motor cycles, etc., that have come to this country from foreign governments. This boom is not altogether the result of the foreign wars, but it may be credited in part to the depression, since in those years manufacturers did not buy new machinery to replace the old. With better conditions there is a demand from manufacturers for replacements.

DUTIES OF THE METAL WORKER

Machine shops are of three types: the job shop, the semi-production shop, and the production shop.

In the job shop there is more demand for machinists than for operators or helpers. In this type of shop the worker has many types of jobs to do and must therefore be able to use all of the machines in the shop.

In the production shop there is much work of a repetitive type. After a machine is set up an operator may merely tend one or more automatic machines. This type of worker is called a machine operator. He does not need the knowledge of machinery that a machinist must have. There is a limited demand for a machinist in this type of shop; he is needed only in the rapairing of machines, in the making of simple tools and fixtures, and in the setting up of machines.

In the semi-production shop there is work similar to that of the job shop combined with the work of the production-type shop.

A job shop is equipped to take almost any type of work and to do the machine work that is required. It may require only one piece, or ten pieces, or a hundred pieces of machinery. The types of machines used in a job shop are such that they may be readily adjusted to do many kinds of work, and the men who operate them are usually machinists rather than machine operators.

In production shops the machines used are usually built to perform the same operation or operations over and over again. Many machines are almost completely automatic; they feed the work and shift the tools for successive operations. Therefore, one man may tend more than one machine, and he is called a machine operator and should not be confused with a machinist.

Between the job shop and the production shop is the semi-production shop. This shop produces limited amounts of identical parts. The semi-production tools may be used as in a job shop, or as in a production shop, but these machines are not as efficient as production machines.

The word "machinist" is misused many times. The difference between the "machinist," the "machine operator," the "machine hand," and the "machine helper" should be noted since each term indicates a smaller amount of technical knowledge, skill, and training.

THE MACHINE HAND

The machine hand is able to set up, operate, and maintain a single type of machine tool. His position is higher on the scale of jobs than a machine operator, but he has not the all-around skill and knowledge of a machinist.

A machine helper does manual tasks to help operators or machinists,--fastening their work to the machines, oiling, conveying parts, or cleaning the shop.

In addition to these workers there is the highest class of mechanic, called a tool and die maker. He is a highly skilled machinist who makes tools, gauges, work-holding fixtures, jigs, etc.

The apprentice is carefully selected and must serve four years of his time in a shop. He usually attends continuation classes and finally becomes a journeyman machinist.

THE MACHINE OPERATOR

In the production shop, where the machine operator is employed, there are a great many men who are engaged in repetitive work in the making of parts in large numbers for use in the building of machines such as hair clippers, sewing machines, small tools, milling machines, meters, etc. These men have learned to operate one type of machine expertly. They have thus acquired skills and knowledge that have a high marketable value and which enable them to earn a comfortable living. There is a steady demand for this type of worker in normal times, and in boom times the demand is greatly increased. Due to the piece-work system the wages of these workers compare favorably with those of the machinist but the work tends to be monotonous and there is a mental strain in the drive to produce more and more goods in order to receive a larger remuneration.

These men may operate standard types of production machines, such as drills, presses, lathes, shapers, milling machines, grinders, screw machines, turret lathes, chucking machines, boring mills, etc., or they may operate special types of machines designed and built for special purposes but which cannot be used in general production.

The chief disadvantage of the last type of operator is that the field of employment is very narrow. In order to find work such an operator may have to search for an employer who produces the same product with the same type of machine. If he wishes to change employers he may find it very difficult. The pay of the operator, however, often compares favorably with that of the machinist.

Operators are usually known by the machines they operate. For instance, a "J. and L. operator" is one who operates a type of machine built by Jones and Lamson, a "Heald operator" is one who operates a grinder made by the Heald Company, etc. As an operator gains experience he may become proficient in operating any of the machines in his field, although they may be manufactured by different companies.

Many of the skills developed in the use of one type of machine are also used in the operation of other types of machines, but the operations may be quite different. For instance, a planer operator and a screw machine operator both learn to read blueprints, micrometers, and scales, and to grind tools, but the setting up of the work in a screw machine is a much more highly skilled job and demands more mechanical ability and knowledge of the machine than does the setting up of work on a planer. Few factories have the training facilities for these different skills and it is not easy to find an opening. There are times, however, when industry is obliged to hire unskilled help and to train them on the job although it is usual to try to hire men with some previous knowledge and experience.

Many boys and young men who are hired to operate simple types of machines, such as drill presses, are quite often given an opportunity to gain skill in the simple operations on the more complex machines and thus gradually become expert operators as they gain in skills and speed.

Often luck and chance have much to do with initial employment and training. The necessity of earning a living and a gradually growing liking for the work often cause continuance in this field. If the work is taken seriously and learning is continuous, successful careers in this work may be achieved.

THE MACHINIST

A true machinist is a man who has served his apprenticeship and is capable of skillfully running all types of machines. He has a thorough knowledge of the construction of machinery and is therefore able to repair broken machinery and to adjust machines so that they are efficient. He has the ability to disassemble broken machinery, to repair parts or to make new ones, and to install them again and put the machine in condition to operate.

A machinist may also be delegated to travel to other places to install and adjust machines that his firm has built. In this case he is a representative of the company, or a road man.

Because of the thorough knowledge of the metal trades which a true machinist has, there are many opportunities for advancement. He must be constantly alert for better and more economical methods of manufacture. If he is imaginative and endeavors to aid the foremen and superintendents to improve production he will have a good chance for advancement.

Promotion will depend largely on his ability to get along with his fellow workers and superiors, his promptness and efficiency in his work, his understanding of the economic problems of his employer, and his ability to understand and correctly execute orders.

Following is a list of some of the more important and typical workers in the machine industry with definitions of their duties. These definitions are for first-class operators, but there are many simpler operations in each kind of job in which all the skills that are listed are not essential to the operator.

1. An assembler assembles the parts of machines. His work also requires accurate adjusting, fitting, and aligning. He may be required to do some machining. The type of work is highly diversified and there is a high degree of responsibility for details on complicated machines that are not easy to inspect after they are assembled. Usually the assembler works from drawings or specifications and must be responsible enough to work under a minimum of supervision.

2. A drill press operator sets up and operates a drill press and spots, drills, reams, counterbores, or taps to simple layouts, or uses ordinary jigs on work of a fairly repetitive nature. He also works from drawings or job layouts and must be able to measure accurately and read plans.

3. An external grinder operator grinds cylindrical surfaces to precision tolerances and fine finish, from drawings or specifications. His work must be very accurate.

4. A rough grinder operator uses disc and portable grinders to remove burrs, to grind welds, and to snag castings.

5. A helper removes material from machines, assists operators, performs minor hand operations, and makes minor machine adjustments under supervision.

6. An engine lathe operator turns, faces, bores, threads, and prepares difficult set-ups on expensive work. This often involves complex operations and the maintenance of close tolerances. The work is diversified and is done from drawings or job layouts under a minimum of supervision. He must be accurate and dependable.

7. A turret lathe operator turns, bores, faces, threads, and checks work. This job involves difficult adjustments to irregular shapes and intricate bar work.

8. A machinist sets up and operates various types of machines such as lathes, milling machines, boring mills, grinders, etc. He performs progressive machining operations on equipment with very close tolerances and unusual requirements. The work is highly diversified, and the machinist may also be required to fit and assemble parts of machines. He works from blueprints under a minimum of supervision. He must be very accurate and dependable.

9. A milling machine operator performs complicated and diversified milling operations and close set-ups. On the more highly skilled jobs he will have difficult set-ups including vertical attachments, or an index head, and he should be able to cut spiral, bevel, and worm gears. He has the responsibility for an expensive and accurate product, and works from blueprints or job layouts under a minimum of supervision.

10. An automatic screw machine operator may set up, set up and operate, or operate various types of multiple or single spindle automatic screw machines. He is not usually a machinist.

11. A hand screw machine operator may be graded the same as an automatic operator with the exception that the machine is not automatic and the work is usually lighter and more varied.

12. A toolmaker should have the highest degree of skill and knowledge of tool making practices. His work includes the making of master gauges, form tools, dies, jigs, fixtures, punches, etc. He must have the ability to lay out and bore holes so that they are within less than one-thousandth of an inch of the specifications which the drawing calls for. He also must be able to plan and perform all bench and machine operations with a minimum of supervision.

13. An inspector tests the work with fixed gauges or standards, rejecting parts which do not meet the standards.

QUALIFICATIONS

The machine field is for the most part a "man's world," but there are some women employed as assemblers, shop clerks, drill press operators, inspectors, punch press operators, nurses, and packers. Youths may enter this field at sixteen years of age, but very few are employed before they are eighteen.

The distribution of ages may be seen in the chart on page one of the Appendix.

Good health is essential because of the necessity of lifting heavy objects and standing all day before a machine.

Only those who are mechanically inclined and interested in machinery should enter this field. If a boy has no desire to find out "what makes things go," or if, after he has taken something apart he does not have the desire to put it together again, he should not consider entering this field. If, however, he understands the need for precision and has the patience which is necessary to work to a thousandth of an inch day after day, he will succeed and enjoy his work. A good mechanic takes pride in his work and gets a great deal of satisfaction from doing difficult and accurate work.

The machinist is expected to furnish his own scale, calipers, one-inch micrometers, monkey wrench, center punch dividers, center gauge, machinist's hammer, and combination square. These are like a physician's kit of instruments. The shop usually has the other necessary tools.

DEFINITION OF APPRENTICE AS APPROVED BY THE FEDERAL COMMITTEE ON APPRENTICESHIP AND BY THE UNITED STATES OFFICE OF EDUCATION

"The term apprentice shall mean a person at least sixteen years of age who is covered by a written agreement with an employer or with an association of employers or employees which apprentice agreement provides for not less than four thousand hours of two and one-half years of reasonably continuous employment for such person and for at least one hundred forty-four hours per year of related supplemental instruction."

EDUCATION

The education necessary for entrance to the machine field depends on the type of work desired. Practically all apprenticeship courses require that the student be a high school graduate. These courses prepare workers to be journeyman machinists after three or four years of work and study.

In the jobs of operator, machine hand, and helper, there are many people who have had only an elementary or junior high school education, but for the person who wishes to advance in the field the senior high school, trade school, or evening school classes will be very helpful. Employees in the metal trades need to know how to measure with a six-inch machinist's ruler, how to read micrometers quickly and accurately, how to read blue prints, and how to make shop sketches. It is necessary to know the use of formulas, shop mathematics, and in some cases to understand geometry and algebra.

The Providence public school system offers all of these subjects in its curriculum. Measuring is taught in seventh grade mathematics and also in the shops; micrometer reading is taught in the junior high schools that have machine shops and also in the senior high schools, the Providence Trade School, and the evening schools. Blue print reading is an outgrowth of mechanical drawing which is taught in all secondary schools above the seventh grade, and shop sketching comes under the heading of freehand drawing. The use of formulas and of algebra is taught in the junior high school, and algebra, geometry, and shop mathematics in the senior high school. Shop mathematics is taught also in the Trade School and in the Evening High School; English and general science are taught in all schools.

TRAINING CENTERS

At present there is a two-year course in machine shop practice at the Trade School. The training is planned to develop skill in the operation of the basic machine tools and also a working knowledge of fundamental mechanical operations. The Trade School does not attempt to develop finished workmen but provides an all-round training which will enable a boy with ability to make rapid advancement in the trades after he has secured employment. Many students in the Trade School are on part-time programs at work and in school. The course includes English, Shop Mathematics, Mechanical Drawing, and Machine Shop Practice.

In the Central High School there is an advanced elective machine shop course offered in the twelfth year for qualified students. In six of the eight junior high schools an elective try-out course in the machine shops will develop some initial skills but does not train for specific jobs.

The National Youth Administration, at 200 Wickenden Street, has a machine shop in which boys who are out of school and over eighteen years of age may apply for training. There is also an excellent full-time day course at the Rhode Island School of Design as well as evening classes.

Another center for training is the Evening High School where anyone may apply who is not attending a public day school. Recently the demand for such training has resulted in opening the machine shops in several of the junior high school buildings as annexes to the Evening High School. Two of the classes at the Evening High School and all of the classes at the Trade School are for people who are at work in the trade. On Saturday mornings there is also a class for apprentices in the trade at the Providence Trade School.

EXPERIENCE

To be a machinist a person must have had experience on all of the basic machines. This experience is usually obtained during apprenticeship or by a much longer but varied work experience.

Machine operators usually obtain some initial skills in a school shop, in a home work shop, or through helping some relative in the business. They may then apply for work in industry, stating the skills which they have mastered. It is usually desirable that the applicant should have operated the type of machine that is used on the job for which he is applying.

One of the best places to learn the trade is in the United States Navy. To enter the Navy as a skilled machinist, however, "Applicants must have completed a four-year apprenticeship in the trade or have had four years of practical experience in such trade, the substantial equivalent of completed apprenticeship." The applicant must also file an application form giving past experiences in the field and the length of time, all of which information may be verified by the Navy Department.

For positions as machinist in the service of the Federal or State Government there is a civil service examination, but for positions in industry applications are made to the personnel officer of each company or to the State and Federal Employment Service. In the United States Employment Service, trade test questions are often used to classify applicants according to their skills and knowledge.

The length of time required to become a skilled worker depends entirely upon the ability of the worker to learn the skills of the particular job. The rate of pay depends entirely upon whether he is really making money for the person who employs him. In other words, the more work accomplished for an employer, the more profit he will make and the more valuable the worker is to him. When slack times come, the poorest worker is laid off first, leaving the best workers on the job. Earnings must be measured by the total yearly amount rather than by the wage for each week.

METHODS OF ENTERING THE OCCUPATION

Following are the methods by which workers obtain employment in this field in industry:

1. By having a friend who is working at the trade intercede with the foreman for the applicant.

2. By answering an advertisement in the daily papers or trade journals.

3. By application in person at the employment office.

4. Through the Rhode Island and United States Junior and Senior Employment Service.

Some State and Federal positions require an examination for entrance.

ADVANCEMENT

The opportunity for advancement is always present in the metal trades industry and is usually based on initiative, inventiveness, loyalty, cooperation, promptness, and the ability to obtain the respect of fellow-workers.

The interrelationship of jobs regarding promotion is very clearly shown in the analysis "Job Descriptions for Job Machine Shops," printed by the United States Department of Labor, April, 1938. In this book each job is analyzed into: job summary, work performed, machine, tools and equipment, material, working conditions, relation to other jobs, specialized qualifications, and special information.

RELATED OCCUPATIONS

There are many opportunities for machinists in maintenance work in transportation companies, mining, the garment industry, and in any place where machinery is used and has to be adjusted or repaired. Textile mills, rubber works, large bakeries, jewelry factories, paint manufacturers, etc., may employ few or many machinists on replacements or developing new machinery.

EARNINGS

The earnings in the machine trade vary in different parts of the country. For this city the approximate rates of pay per hour are:

Apprentice	$ .30 - $ .50
Operator	$ .60 - $ .65
Assembler	$ .50 - $ .73
Machine Hand	$ .45 - $ .75
Tool Maker and Machinist	$ .75 - $ .80
Foreman	$ .90 - $1.00

Operators are usually on piece work and therefore if they are adept they may make more money than their rate calls for.

The Navy yard scale of pay at present for first, second, and third-class machinists is $8.256, $7.776, and $7.296 per eight-hour day, less a deduction of three and one-half per cent. for retirement annuity, giving an hourly rate of $1.03, $ .972, and $ .912, less the three and one-half per cent. deduction.

HOURS

Until October 24, 1940, the maximum standard work week under the Fair Labor Standards Act is forty-two hours; after this date it will be forty hours. Employees may work longer hours than the above but the pay for overtime must be at the rate of one and one-half times the hourly rate.

The hours of labor for youth under eighteen years of age in the metal trades are regulated by the forty-eight hour law of the General Laws, 1923, Chapter 85, as amended by P. L. 1936, Chapter 2426, Section 35, which are as follows:

Hours of Labor for Women and Minors Under Eighteen

FORTY-EIGHT HOUR LAW

(General Laws, 1923, Chapter 85, as amended by P. L. 1936, Chapter 2426.)

"SEC. 35. No child under sixteen years of age shall be employed or permitted or suffered to work at any time in any factory, manufacturing or mechanical establishment and no child under sixteen years of age shall be employed or permitted or suffered to work more than forty hours in any one week in any business or mercantile establishment within this state, and in no case shall the hours of labor exceed eight hours in any one day and such employment shall not be before six o'clock in the forenoon or later than six o'clock in the afternoon of any one day. No woman and no child under eighteen years of age shall be employed or permitted or suffered to work in any factory, manufacturing, mechanical, business or mercantile establishment within this state more than forty-eight hours in any one week, and in no case shall the hours of labor exceed nine hours in any period of twenty-four consecutive hours, except when forty-eight hours are worked in five days in which case the hours of labor shall not exceed nine and three-fifths hours in any period of twenty-four consecutive hours. Every employer shall post in one or more places in his establishment where it may be easily seen and read by all women and children employed by him, a printed or typewritten notice stating the minimum rates of pay, including hourly rates and or piece rates which the employees are receiving for the various types of work performed in the establishment and the number of hours' work required of such persons on each day of the week and the hours of commencing and stopping work, and the employment of any such person for a longer time in a period of twenty-four consecutive hours than so stated, shall be deemed a violation of this section: Provided, that the provisions of this section shall not be construed to enlarge or impair any restriction placed upon the employment of any child by the provisions of Chapter seventy-six of the general laws." (As amended. P. L. 1936.)

In addition to this there is the Fair Labor Standards Act which has as some of its provisions Coverage, Minimum Wages, Maximum Hours, and Child Labor.

COVERAGE

The wage and hour provisions of the law apply to workers in interstate commerce or in the production of goods for interstate commerce.

MINIMUM WAGES

No worker may be paid at a rate less than thirty cents an hour for the six years from October 24, 1939, to October 24, 1945, or less than forty cents an hour thereafter.

MAXIMUM HOURS

Each worker must be paid at the rate of one and one-half times his regular rate of pay for all hours worked over forty-two hours per week for the year beginning October 24, 1939, and for all hours worked over forty hours per week after October 24, 1940.

CHILD LABOR

Since October 24, 1938, goods produced in establishments in or about which "oppressive child labor" has been employed have been barred from interstate commerce.

REGULARITY OF EMPLOYMENT

The metal trades is a fairly stable industry, with the slackest work period in the summer months. At present during the rush of war-time business there is much overtime work, and many plants are running two and three shifts of workers.

HEALTH AND ACCIDENT HAZARDS

Rhode Island has a Factory Inspection Bureau which surveys all plants and makes suggestions to correct accident hazards.

A typical monthly report of the State of Rhode Island Department of Labor shows the following analysis of industrial accidents:

Textile plants	130 persons
Metal and Machine Trades	59 persons
Contractors	54 persons
Jewelry and Optical Plants	40 persons

From these figures the Metal and Machine trades appear to be not as hazardous as the textile industry.

The number of industrial accidents is showing a decrease although employment is increasing.

In the report of the Director of Labor it is found that "Bruises, contusions, and abrasions constitute the type of injury which ordinarily affects the greatest number of persons. Many of these slight injuries are ignored and become infected, finally resulting in serious, even permanent, disability. A great deal of suffering could be avoided, loss of wages and accident costs prevented, if each injury was immediately treated and reported to supervisors." This shows the necessity for self-care.

In Rhode Island there is also the Workmen's Compensation Act which covers the industrial field.

ORGANIZATION

In Rhode Island there is a branch of the National Metal Trades Association which is an organization of metal trades employers. In addition to this, many plants have foremen't clubs, fifty-year clubs, etc. In Rhode Island the unions

are not particularly active in the machinist's field.

EMPLOYMENT AGENCIES

For youth from sixteen to twenty-two years of age there is the Junior Placement Office, and for those from twenty-two on there is the Senior Employment Service. The use of these services is free to applicants for employment.

Many of the large plants have employment offices where application for employment may be made to the personnel manager. In small plants the hiring is done by the owner or by the foreman.

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Youth Tell Their Story--Bell

American Council on Education

The Providence Plantations for 250 Years--Welcome Arnold Greene

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Revision of
10/4/39

PRATT AND WHITNEY AIRCRAFT APPRENTICE TECHNOLOGY COURSE

in conjunction with

UNIVERSITY OF CONNECTICUT
(Effective September 1, 1940)

	1st Semester	Hours
	English Comp.	36
	Math. I	36
	Physics I (Lab.)	36
PTX	Mech Drawing	40

	2nd Semester	Hours
	Government	36
	Math. II	36
	Physics II (Lab.)	36
PTX	Mech Drawing	40

	3rd Semester	
	Applied Mech I	36
	Chem I (Lab.)	36
	Math III	36

	4th Semester	
	Applied Mech II	36
	Chem II (Lab.)	36
	Thermo I	36
PTX	Mechanisms	40

	5th Semester	
	Industry I	36
	Strength of Mat.	36
	Thermo II	36

	6th Semester	
	Dynamics of Mach.	36
	Heat Transfer	36
	Industry II	36
PTX	Applied Elec.	40

7th Semester	Hours
Fluid Mech.	36
General Design	36
Industry III	36

7-3-40

Total 126 weeks

PRATT & WHITNEY

DIVISION NILES-BEMENT-POND COMPANY

WEST HARTFORD, CONNECTICUT

Apprentice training at this plant is in two classes: "Regular" apprentices who are high school or trade school graduates, and "Special" apprentices who are college or engineering school graduates. "Regulars" must be 18, 19 or 20 years old at enrollment. All candidates must be of reasonably good build and physical condition and must show a definite interest in the trade to be learned.

"Regulars" undergo a trial period of three to six months, after which, if accepted, they enter into an agreement to complete the course of 7500 hours, or approximately three years. A deposit of $25.00 is required, which is returned together with $100.00 upon satisfactory completion of the course.

The rate of pay, starting at 32¢ per hour is increased at 1250 hour intervals (approximately six months) throughout the training so that the hourly rate for the final six months period is 51¢.

"Regulars" attend trade school one-half day a week where they are taught blueprint reading, mathematics, mechanics and other subject matter allied to the trade. For this they are paid at their standard shop rate. They are graded in shop and school at quarterly intervals and it is required that their marks be satisfactory to continue in the course.

The entrance requirements for "Specials" include in general, a college education but vary widely according to the apprentice and the type of job to be filled. He works about one and one-half years in the shop in this preparation, and his pay depends upon actual progress he achieves in the training process.

"Specials" attend Junior A.S.M.E. meetings, Apprentice Club Meetings and form study groups under the sponsorship of the Junior A.S.M.E. for their theoretrical knowledge: this is on their own time.

Both groups get their shop training in the various production departments, working beside regular workmen on standard operations and against standard times. They are coached and supervised by assistant foremen who are capable and thorough mechanics; and they are moved at intervals from one department to another so that they may get a broad training in the trade.

PRATT & WHITNEY
DIVISION NILES BEMENT POND CO.

R.B. Carmichael

R.B. Carmichael
Supervisor of Apprentices.

Hartford Exhibit I

When Notified To Report To Class, Every Applicant Must Bring:

Transfer to State Trade School — Hartford (form enclosed).
Athletic permission signed by parent or guardian (form enclosed).
Permit for Trade School attendance, signed by local School Board (3 forms if student lives outside of Hartford; otherwise not required). Pen, pencil, soap, towel and 50 cents for locker key.

SEE BELOW FOR ADDITIONAL REQUIREMENTS

	REMARKS	EQUIPMENT	APPROXIMATE PRICE	WHERE OBTAINABLE
AUTOMOBILE	120 lbs. minimum weight seems advisable.	Lettering pad	$.05	Drafting Dept.
		2H drawing pencil	.05	Drafting Dept.
		2 Suits khaki unionalls with protected buttons	?	Clothing store
		3-8½ x 11 Looseleaf binders	.75	Office
		Tool check deposit	.50	Office
		Tool kit (within 6 months)	10.00	Auto Dept.
		Underlay Sheet	.05	
BEAUTY CULTURE	Minimum age is 17 years, owing to the Hairdressing Commission requirements. Approximately a two year course. Taller girls, not too light in weight, find employment more readily. Two years passing work in high school is required.	Enclosed physical examination card, signed by school's doctor	3.00	School's doctor
		2 White uniforms of the Hoover type with low neck and short sleeves	1.50 and up	Department store
		Department locker key deposit	.50	Office
		Kit rental (the $24 kit becomes the student's property when she graduates)	1.00 weekly	Beauty Culture Dept.
CARPENTRY		Carpenter's white bib overalls	?	Clothing store
		Nail set	?	Hardware store
		Folding rule	?	Hardware store
		2-8½ x 11 Looseleaf binders	.50	Office
		2H drawing pencil	.05	Drafting Dept.
		Lettering pad	.05	Drafting Dept.
		Underlay Sheet	.05	
DRAFTING (Architectural)	Two years passing work in high school is very desirable because of technical nature of trade.	2-8½ x 11 Looseleaf binders	.50	Office
		Locker key deposit	.50	Office
		2H drawing pencil	.05	Drafting Dept.
		Eraser	.05	
		Lettering pad	.05	Drafting Dept.
		12 in. Architect's scale	.50	Drafting Dept.
		2 Triangles (30° x 60° and 45° x 45°)	.70	Drafting Dept.
		Dept. drawer key deposit (optional)	.50	Drafting Dept.
		Drawing instruments (within 3 months)	4.20	Drafting Dept.
DRAFTING (Machine)	Two years passing work in high school is very desirable because of technical nature of trade. Approximately 1000 hours are spent in Machine Dept.	Blue bib overalls	?	Clothing store
		6-in. steel scale	?	Hardware store
		2-8½ x 11 Looseleaf binders	.50	Office
		Locker key deposit	.50	Office
		2H drawing pencil	.05	Drafting Dept.
		Eraser	.05	Drafting Dept.
		Lettering pad	.05	Drafting Dept.
		12 in. Architect's scale	.50	Drafting Dept.
		2 Triangles (30° x 60° and 45° x 45°)	.70	Drafting Dept.
		Drawing instruments	4.20	Drafting Dept.
		Dept. drawer key deposit (optional)	.50	Drafting Dept.
		Handbooks will be required later as student progresses	7.00	Drafting Dept.
		Tool Check Deposit	.50	Office
		Machinery Handbook	4.80	Drafting Dept.
DRESS MAKING	Course is two and a half years in length.	Thimble	?	Department store
		Smock on entering	1.25	Dressmaking Dept.
		6 in. shears	?	Department store
TRICAL	Two years passing work in high school is very desirable because of technical nature of trade.	Blue bib overalls	?	Clothing store
		2-8½ x 11 Looseleaf binders	.50	Office
		Locker key deposit	.50	Office
		2H drawing pencil	.05	Drafting Dept.
		Lettering pad	.05	Drafting Dept.
		Tool Check Deposit	50	

BI	high school is required.	when she graduates)	weekly	Beauty Culture Dept.
CARPENTRY		Carpenter's white bib overalls	?	Clothing store
		Nail set	?	Hardware store
		Folding rule	?	Hardware store
		2-8½ x 11 Looseleaf binders	.50	Office
		2H drawing pencil	.05	Drafting Dept.
		Lettering pad	.05	Drafting Dept.
		Underlay Sheet	.05	
DRAFTING (Architectural)	Two years passing work in high school is very desirable because of technical nature of trade.	2-8½ x 11 Looseleaf binders	.50	Office
		Locker key deposit	.50	Office
		2H drawing pencil	.05	Drafting Dept.
		Eraser	.05	
		Lettering pad	.05	Drafting Dept.
		12 in. Architect's scale	.50	Drafting Dept.
		2 Triangles (30° x 60° and 45° x 45°)	.70	Drafting Dept.
		Dept. drawer key deposit (optional)	.50	Drafting Dept.
		Drawing instruments (within 3 months)	4.20	Drafting Dept.
DRAFTING (Machine)	Two years passing work in high school is very desirable because of technical nature of trade. Approximately 1000 hours are spent in Machine Dept.	Blue bib overalls	?	Clothing store
		6-in. steel scale	?	Hardware store
		2-8½ x 11 Looseleaf binders	.50	Office
		Locker key deposit	.50	Office
		2H drawing pencil	.05	Drafting Dept.
		Eraser	.05	Drafting Dept.
		Lettering pad	.05	Drafting Dept.
		12 in. Architect's scale	.50	Drafting Dept.
		2 Triangles (30° x 60° and 45° x 45°)	.70	Drafting Dept.
		Drawing instruments	4.20	Drafting Dept.
		Dept. drawer key deposit (optional)	.50	Drafting Dept.
		Handbooks will be required later as student progresses	7.00	Drafting Dept.
		Tool Check Deposit	.50	Office
		Machinery Handbook	4.80	Drafting Dept.
DRESS MAKING	Course is two and a half years in length.	Thimble	?	Department store
		Smock on entering	1.25	Dressmaking Dept.
		6 in. shears	?	Department store
ELECTRICAL	Two years passing work in high school is very desirable because of technical nature of trade.	Blue bib overalls	?	Clothing store
		2-8½ x 11 Looseleaf binders	.50	Office
		Locker key deposit	.50	Office
		2H drawing pencil	.05	Drafting Dept.
		Lettering pad	.05	Drafting Dept.
		Tool Check Deposit	.50	Office
		Underlay Sheet	.05	
FOOD TRADES	Course is two and a half years in length It is sometimes necessary for students in this department to serve evening meals at the school as part of their training.	Enclosed physical examination card, signed by school's doctor	3.00	School's doctor
		2 Short-sleeved white uniforms, opening to the waist only	2.00	Department store
		2 White aprons (butcher type)	1.00	Department store
		Monthly charge for laundering head bands	.10	Food Trades Dept.
MACHINE		Blue bib overalls	?	Clothing store
		6-in. steel scale	?	Hardware store
		2-8½ x 11 Looseleaf binders	.50	Office
		Locker key deposit	.50	Office
		Drawing Instruments	4.20	Drafting Dept.
		2 Triangles (30° x 60° and 45° x 45°)	.70	Drafting Dept.
		2H drawing pencil	.05	Drafting Dept.
		Eraser	.05	Drafting Dept.
		Lettering pad	.05	Drafting Dept.
		Underlay Sheet	.05	
		Machinery Handbook	4.80	Drafting Dept.

	REMARKS	EQUIPMENT	APPROXIMATE PRICE	WHERE OBTAINABLE
MASONRY	120 lbs. minimum weight seems advisable.	White overalls without bib (dungarees)	?	Clothing store
		Pair of work shoes (not the ones worn to and from school; old shoes will do)	?	Shoe store
		2-8½ x 11 Looseleaf binders	.50	Office
		Locker key deposit	.50	Office
		Tool bag key deposit	.25	Office
		Lettering pad	.05	Drafting Dept.
		2H drawing pencil	.05	Drafting Dept.
		Underlay Sheet	.05	
PAINTING		2 Suits white bib overalls	?	Clothing store
		Dust brush	1.00	Hardware store
		Putty knife	.35	Hardware store
		Broad knife	.50	Hardware store
		Claw hammer	.50	Hardware store
		Screwdriver	.25	Hardware store
		Plumb bob	.10	Hardware store
		Pliers	.40	Hardware store
		Glasscutter	.10	Hardware store
		Chalk line	.10	Hardware store
		Chalk line chalk (blue and white)	.10	Hardware store
		Tool bag approximately 12" x 8" x 18"	2.00	Luggage store
		Lettering pad	.05	Drafting Dept.
		2H drawing pencil	.05	Drafting Dept.
		2-8½ x 11 Looseleaf binders	.50	Office
		Locker key deposit	.50	Office
		Underlay Sheet	.05	
PLUMBING	120 lbs. minimum weight seems advisable.	Blue bib overalls	?	Clothing store
		Jack-knife	?	Hardware store
		5-ft. Folding rule	?	Hardware store
		2H drawing pencil	.05	Drafting Dept.
		Lettering pad	.05	Drafting Dept.
		2-8½ x 11 Looseleaf binders	.50	Office
		Locker key deposit	.50	Office
		Mutton tallow and wiping cloths	.30	Plumbing Dept.
		Underlay Sheet	.05	
PRINTING		2 Printers black aprons	?	Dry goods store
		Rule, gauge, composing stick	4.75	Printing Dept.
		2-8½ x 11 Looseleaf binders	.50	Office
		Locker key deposit	.50	Office

The applicant must appear in person for entrance tests, which are given on the first Friday of each month at 8:30 A. M.

Any questions regarding entrance to the school, or entrance tests, or where one stands on the waiting list, will be handled on W[redacted]g only. Tuesday 3 to 4:30 P.M.

The entrance tests themselves are held only on the first Friday of each month, in the lower Cafeteria, at 8:30 A. M.

If that Friday is a holiday, the tests are given on the following Friday.

There is no tuition fee, as this school is supported by the City of Hartford and the State of Connecticut.

There are five days in the school week. The school is closed on legal holidays and from about the middle of August until after Labor Day; there are also a few other holidays, making about 36 days of vacation in a year.

Unless otherwise stated later, enrollment age is 16 years, the equivalent of a grammar school education is necessary, and the courses are nearly three years in length.

Hours for the All-Day courses are: 8:00 to 12:00 and from 1:00 to 5:00 for boys, 8:30 to 12:00 and from 1:00 to 4:30 for girls.

In addition there is another course known as the Cooperative High School course. The student goes to High School half a day and to Trade School half a day each day the High School is in session. On other days he spends the whole day in the Trade School. Entering this course when he graduates from the eighth grade, he will complete the work in both schools at the same time, if he makes average progress and does not lose time through absences.

List of Trades: Automobile, Beauty Culture, Carpentry, Drafting (Architectural), Drafting (Machine), Dressmaking, Electrical, Food Trades, Machine, Masonry, Painting and Decorating, Plumbing, and Printing.

P.	(blue and white)	.10	Hardware store
	Tool bag approximately 12" x 8" x 18"	2.00	Luggage store
	Lettering pad	.05	Drafting Dept.
	2H drawing pencil	.05	Drafting Dept.
	2-8½ x 11 Looseleaf binders	.50	Office
	Locker key deposit	.50	Office
	Underlay Sheet	.05	
PLUMBING	Blue bib overalls	?	Clothing store
120 lbs. minimum weight seems advisable.	Jack-knife	?	Hardware store
	5-ft. Folding rule	?	Hardware store
	2H drawing pencil	.05	Drafting Dept.
	Lettering pad	.05	Drafting Dept.
	2-8½ x 11 Looseleaf binders	.50	Office
	Locker key deposit	.50	Office
	Mutton tallow and wiping cloths	.30	Plumbing Dept.
	Underlay Sheet	.05	
PRINTING	2 Printers black aprons	?	Dry goods store
	Rule, gauge, composing stick	4.75	Printing Dept.
	2-8½ x 11 Looseleaf binders	.50	Office
	Locker key deposit	.50	Office

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List of Trades: Automobile, Beauty Culture, Carpentry, Drafting (Architectural), Drafting (Machine), Dressmaking, Electrical, Food Trades, Machine, Masonry, Painting and Decorating, Plumbing, and Printing.

INFORMATION
AND REQUIREMENTS FOR ENROLLMENT

AB=
CD=
EF=
GH=
MN=

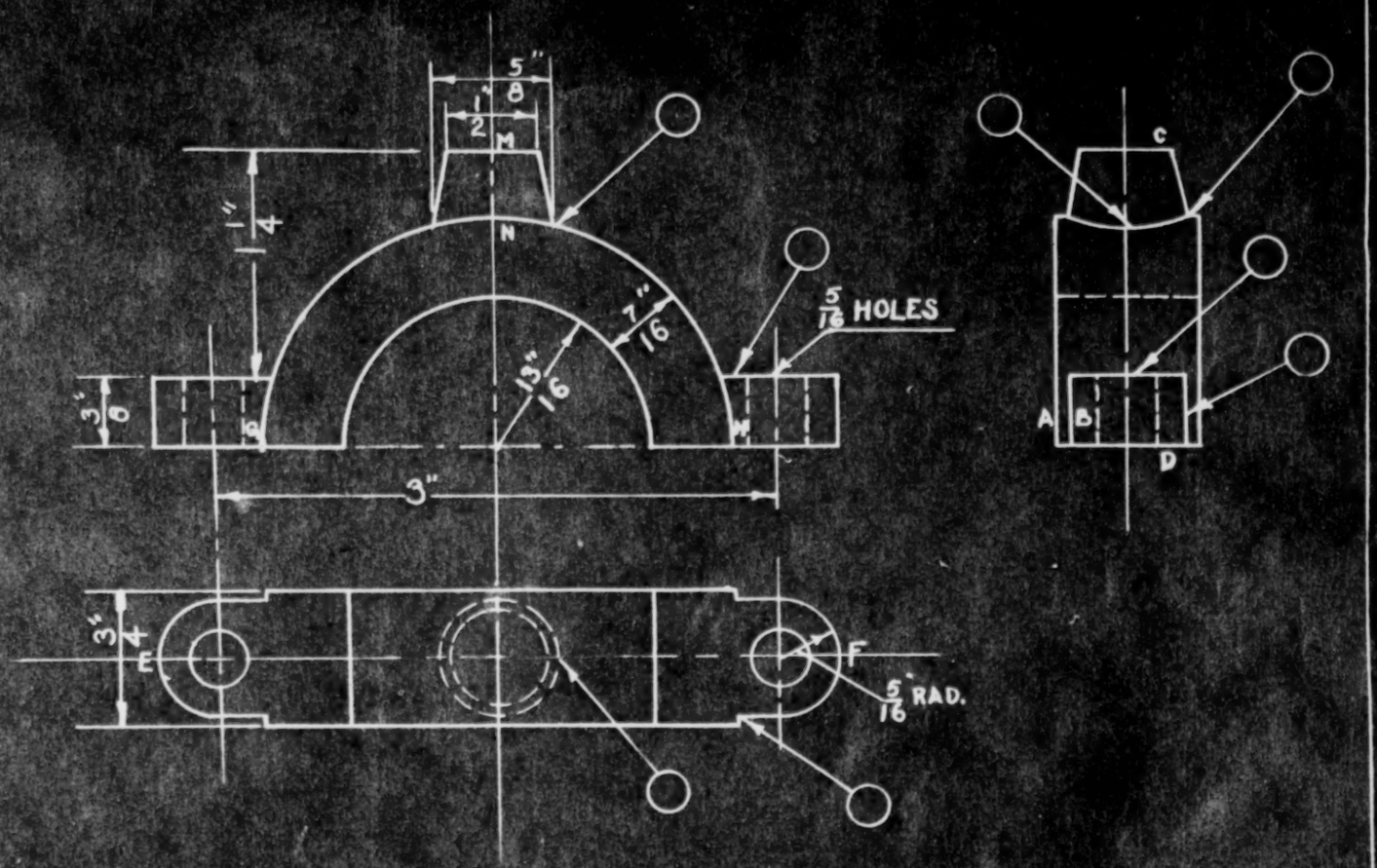
1. Could the views have been arranged to show the Cap to better advantage? Show with a sketch why this is so.

2. What is the shape of the boss, at the top of the Cap?

3. Where should the oil hole be placed for proper lubrication?

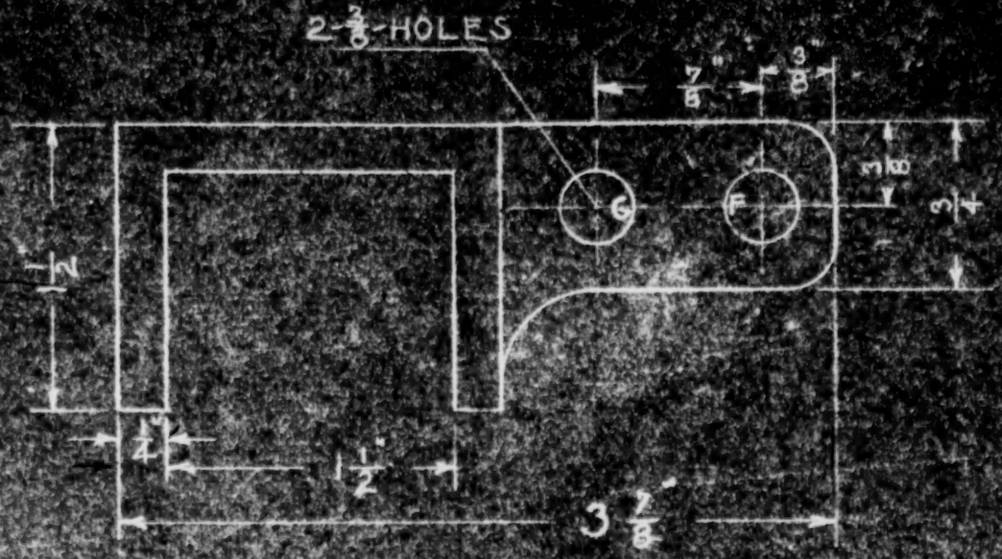
4. What size shaft is this Cap to be used on?

5. Make a three view sketch of the Bearing Cap, changing the width to 1 1/4" and the end radius to suit.



Make a sketch like above and write answers on regular note paper.
Use targets to show location of same point or line in two views.
Do the work indicated in question 5 on A size drawing paper.

Name	Date		BEARING CAP			A-213
			STATE TRADE SCHOOL-HARTFORD, CONN.			

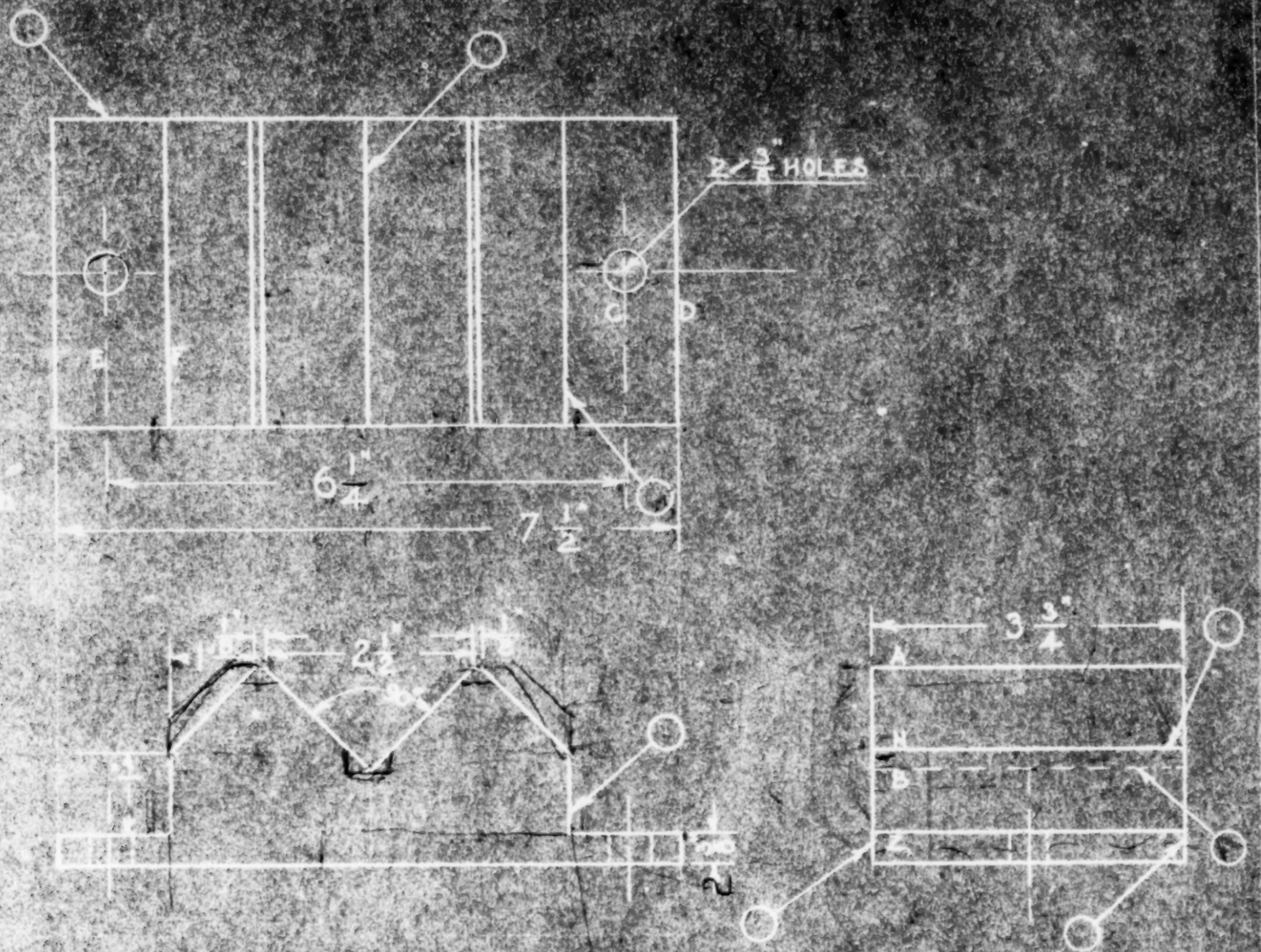


BC =
EA =
DC =
FG =

1. Why is a center line not necessary thru the square opening of the bracket?
2. Would one 3/8" hole be enough to hold the bracket in place?
3. Make a three view sketch of a bracket similar to this but having two square ends. (double end)

COMPLETE THIS END VIEW

Name	Date		DRAWING			A-A3-10
			STATE TRADE SCHOOL-HARTFORD, CONN.			

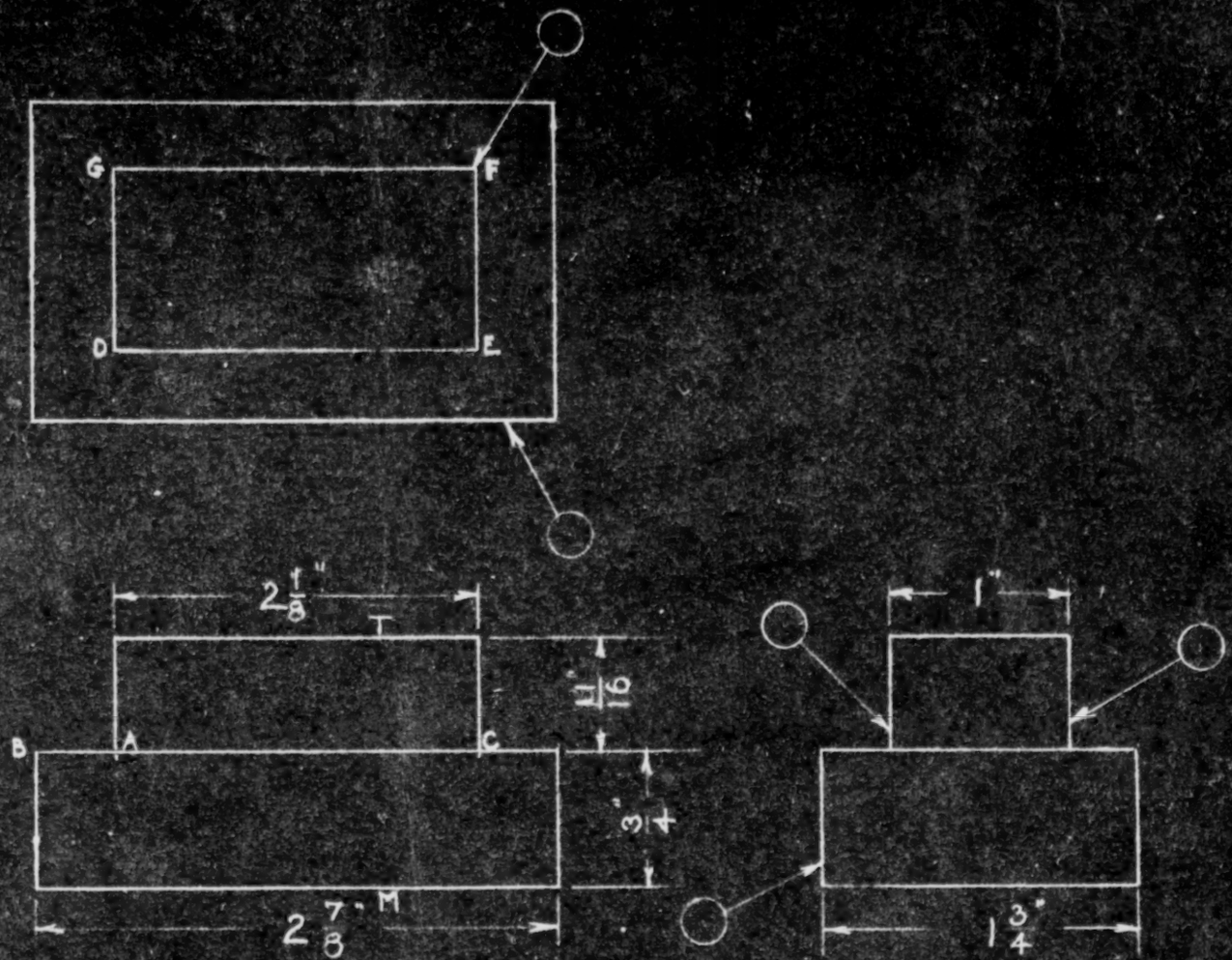


	DATE		V BLOCK		
			STATE TRADE SCHOOL - HARTFORD, CONN.		

A-211

AB =
AC =
TM =

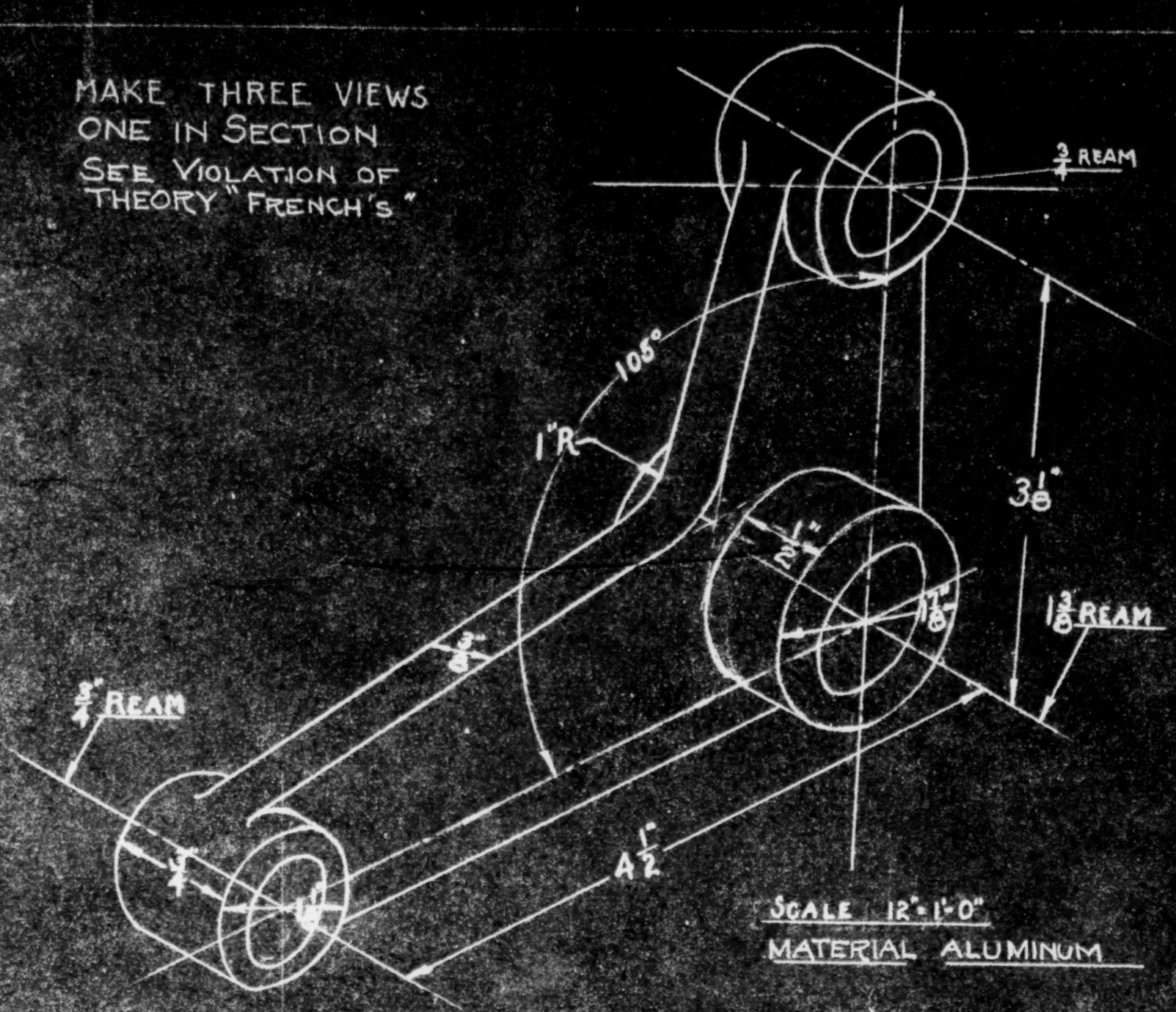
1. What does a dotted line represent?
2. Is the top part, DEFG, located centrally on the object?
3. Make a three view sketch with the 2 7/8" dimension changed to 2 7/16". All other dimensions to remain the same.



Make sketch like above and write answers on regular note paper. Place letter or figure in the targets ○——→ to show location of same point or line in the two views.
Do the work indicated in the last question on "A" size drawing paper.

Name	Date					A-203
			STATE TRADE SCHOOL-HARTFORD, CONN.			

MAKE THREE VIEWS
ONE IN SECTION
SEE VIOLATION OF
THEORY "FRENCH'S"



SCALE 12" = 1'-0"
MATERIAL ALUMINUM

DR.	DATE	SCALE	BELL CRANK	CK		A-252
TM		12" = 1'-0"	STATE TRADE SCHOOL - HARTFORD, CONN.	AP		

AB =
CD =
EF =
GH =
AK =
MN =

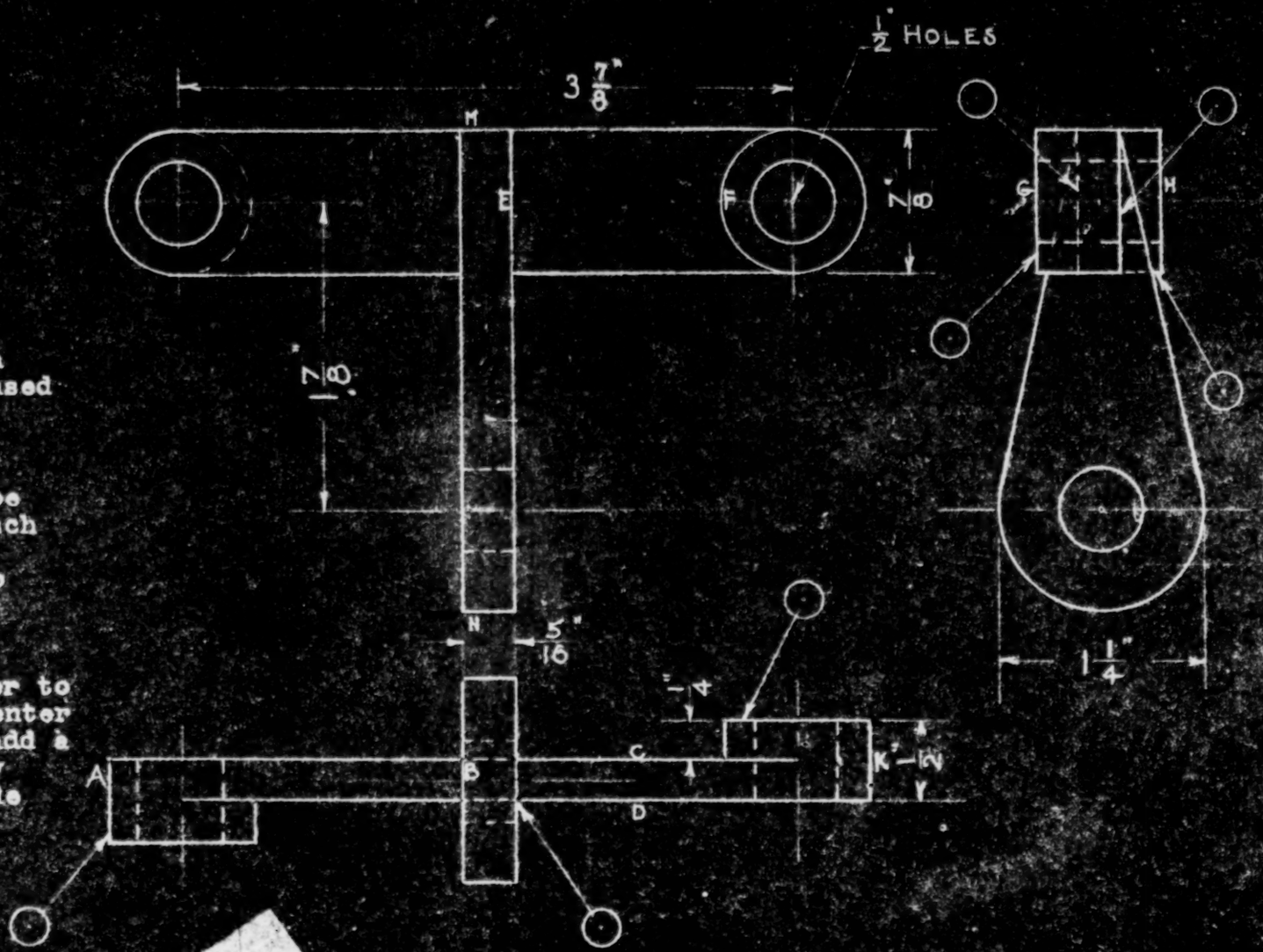
1. How many $\frac{1}{2}$" dia. holes are there in the Equalizer?

2. What is a tangent line?

3. Show on your sketch the tangent lines used in sketching the Equalizer.

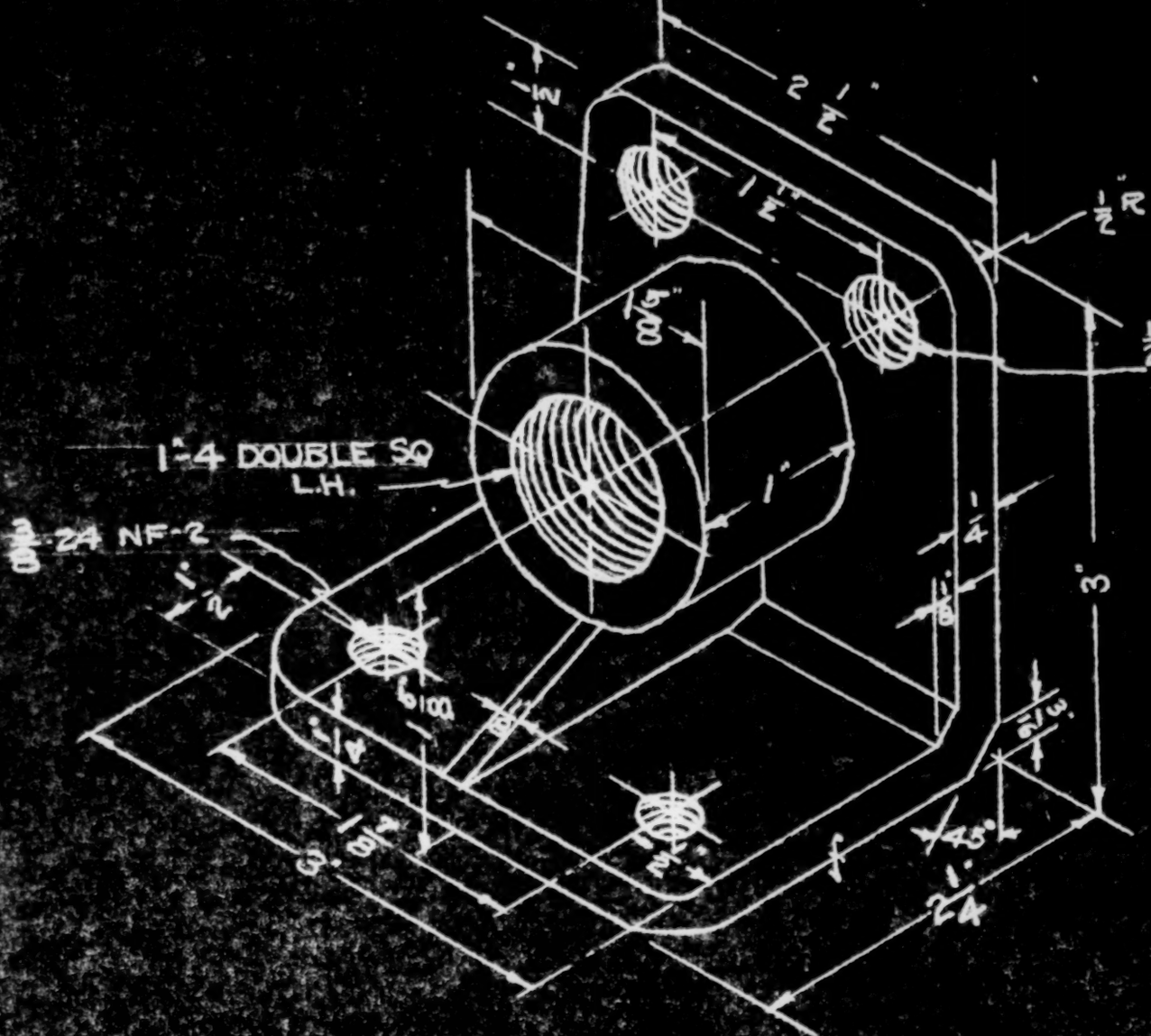
4. Could two circles be drawn tangent to each other? Could three circles be tangent to each other?

5. It is necessary to change the Equalizer to accomadate a $5\frac{1}{4}$" center distance, also to add a boss 1/16" thick by 1" dia. on each side of the 5/16" thick end. Make a three view sketch showing these changes.



Make a sketch [illegible] above and write answers on regular note paper
Use [illegible]gets to show location of same point or line in two views
Do [illegible] indicated in question 5 on A size drawing paper.

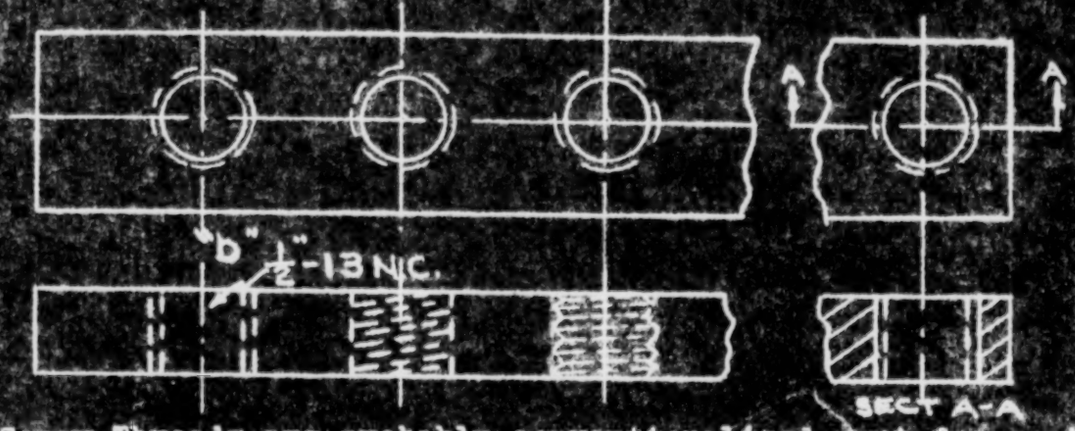
Name	Date		EQUALIZER		A-214
			STATE TRADE SCHOOL-HARTFORD, CONN.		



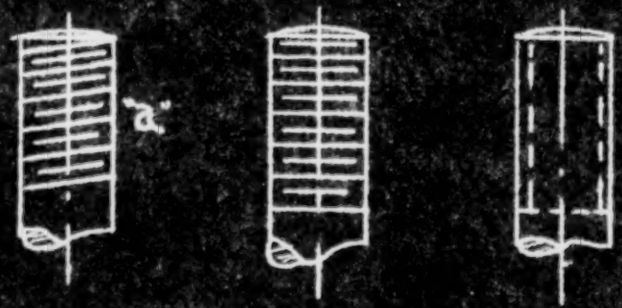
DR.	DATE	SCALE	WORM BRACHET	CK.	DATE	DRAWING NO.
TR.			STATE TRADE SCHOOL HFD. CT.	AP.		A-249

SCREW THREADS (Ref. American Standards page 20-21.)

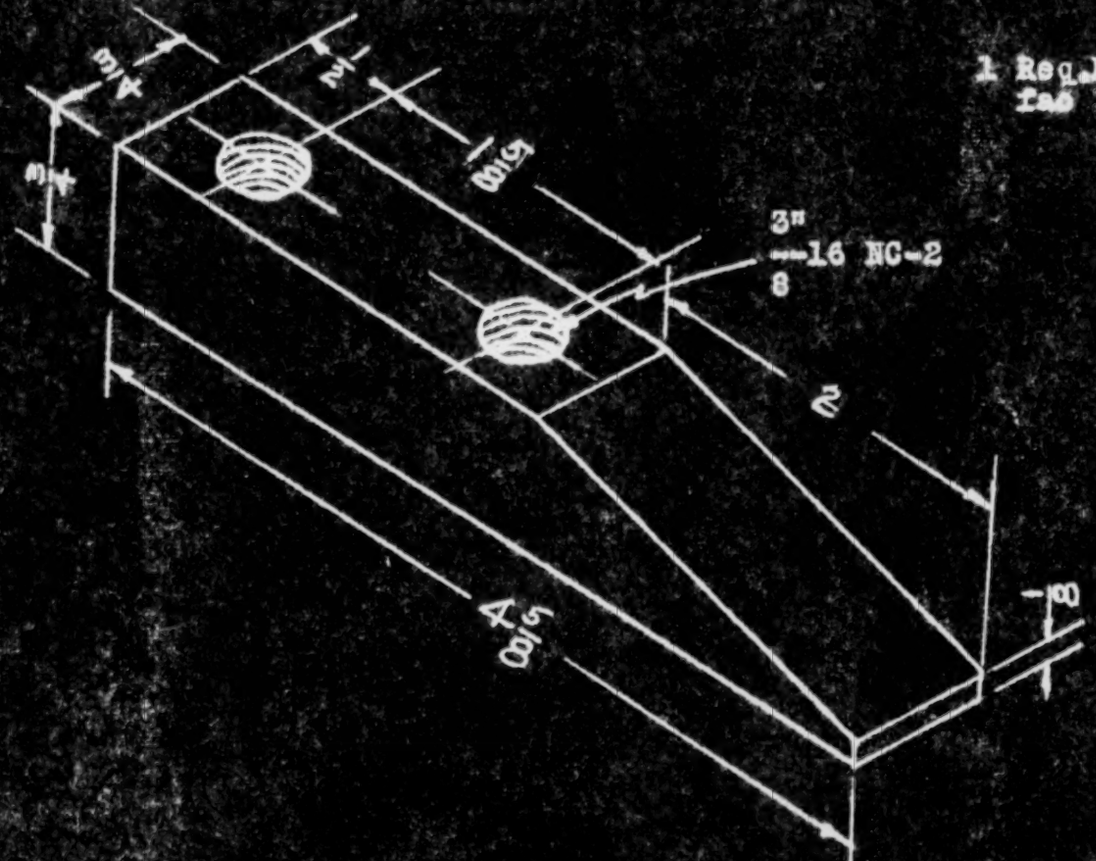
Tapped holes are holes with threads in them. The most common method of designating a tapped hole is method "b"



Screw Threads are probably conventionalized most frequently by method "a"



MAKE A THREE VIEW DRAWING OF CLAMP

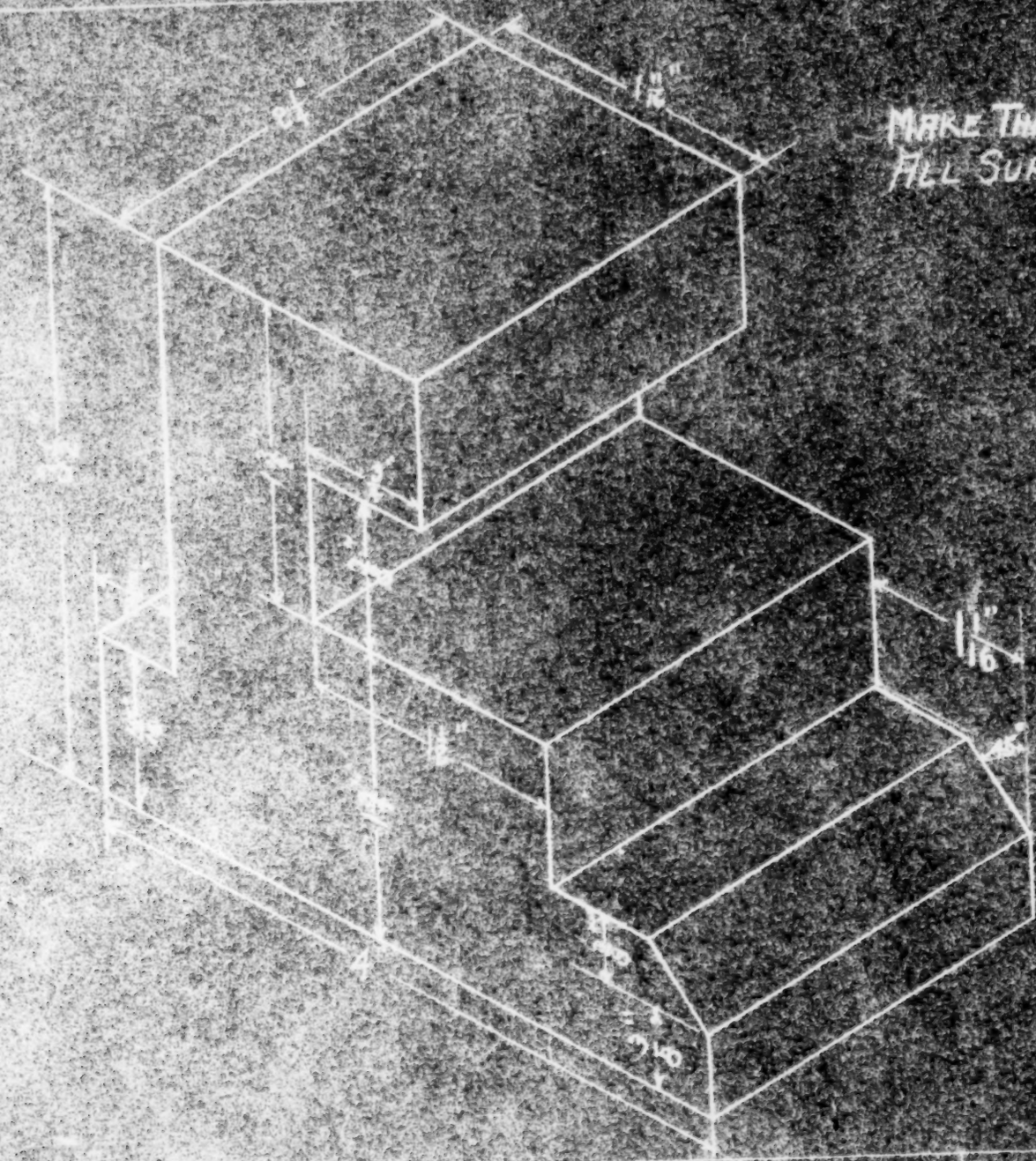


1 Req. M.S. tab

DR.	DATE	SCALE	A-248
CH.			
APP.			

SCREW THREADS

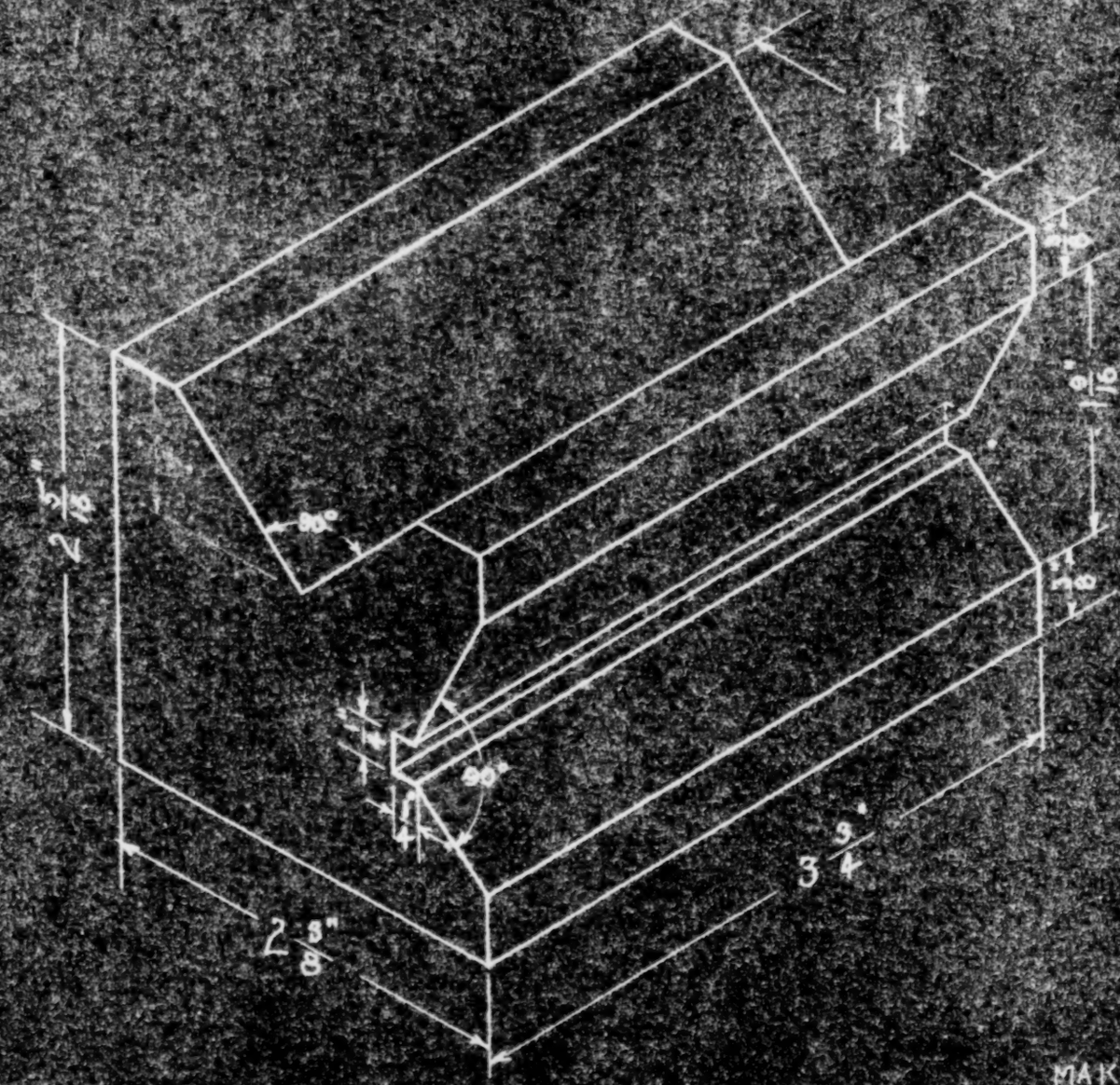
STATE TRADE SCHOOL HARTFORD, CONN.



MAKE THREE VIEWS —
ALL SURFACES FINISHED

MATERIAL STEEL

		CLAMPING BLOCK	CK.	DATE	A-4
		TRADE SCHOOL HARTFORD, CONN.	AP.		



MAKE THREE VIEWS
MATERIAL - STEEL

DR	DATE	SCALE	V-BLOCK		DATE	DRAWING NUMBER
			STATE TRADE SCHOOL - HARTFORD, CONN.			A-243

Exhibit II

R. I. U. C. - 246

PROVIDENCE PUBLIC SCHOOLS

SUMMARY OF SHORT UNIT TRAINING RECORD — MACHINE SHOP COURSE

Name _____

Address _____

Attendance Record _____ Absent _____ Tardy _____

TEACHERS ESTIMATE OF STUDENT	MACHINE SHOP OPERATIONS	GRADE
Mechanical Ability _____	Lathe	_____
Initiative _____	Milling	_____
Effort _____	Drill Press	_____
Interest _____	Shaper	_____
Care of Mach. & Tools _____	Bench Work	_____
Cooperation _____		
Carefulness _____		

BLUEPRINT READING AND SHOP SKETCHING — Grade _____

MACHINE SHOP MATHEMATICS — Grade _____

_____

Name_____ No._____

ATTENDANCE: June 24, 25, 26, 27, 28
July 1, 2, 3, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 22, 23, 24, 25, 26, 29, 30, 31
August 1, 2, 5, 6, 7, 8, 9, 12, 13, 14 15, 16, 19, 20

PROJECTS Exhibit III

Proj. No. 1—Handle
Proj. No. 2—Turning Exercise
Proj. No. 3—Cap Screw
Proj. No. 4—Threading on 1, 2, 3
Proj. No. 5—Turning Lathe Center
Proj. No. 6—Screw Driver
Proj. No. 7—Hammer
Proj. No. 8—Nut
Proj. No. 9—Clamps
Proj. No. 10—Paper Weight

No.	Operation	Proj. No.	Mark	Proj. No.	Mark	Proj. No.	Mark	Proj. No.	Mark
	LATHE								
1.	Centres (Test and True by Turn)								
2.	Centres (Align Tail Stock) Turn								
3.	Centres (Align Tail Stock) Bar								
4.	Back Gears (Use of)								
5.	Back Rest (Centre Work)								
6.	Back Rest (Turn Diam.)								
7.	Centre Work (Use Centre Square)								
8.	Centre Work (Comb. Dr. and C's.)								
9.	Centre Work (Hermaphrodite)								
10.	Centre Work "V" Block								
11.	Chuck—Straight Hole								
12.	Chuck Use Drawing In								
13.	Chuck Use Independent								
14.	Chuck Use Universal								
15.	File in Lathe								
16.	Finish Turn								
17.	Form Tool (Use of)								
18.	Hand Tool (Use of)								
19.	Knurl								
20.	Length (Turn to)								
21.	Mandrel (Straight Use of)								
22.	Micrometer Cal., Read and Use								
23.	Polish								
24.	Press Fit (Turn)								
25.	Ream Hole (Use Lathe)								
26.	Rough Turn								
27.	Running Fit (Turn)								
28.	Shoulder (Turn to)								
29.	Straighten Shafts, Etc.								
30.	Tap Thread (Use Lathe)								
31.	Taper Turn (Use Att.)								
32.	Taper, Set Over Tailstock								
33.	Taper, Use Comp. Rest								
34.	Thread, Use Gear Box								
35.	Thread, Use Simple Gearing								
36.	Thread, Use Compound Gearing								
37.	Thread, Use Die								
38.	Thread, Internal								
39.	Thread, U. S. Standard								
40.	Thread, "V"								
41.	Vernier Cal. (Read and Use)								
	MILLING								
42.	Angle Plate (Use of)								
43.	Angular Milling								
44.	Arbor Support Arm (Use of)								
45.	Back Lash (Eliminate)								
46.	Back of Centre Cut (Cutter)								
47.	Centres, (Index) Mill Taper								
48.	Cutter (Set Central)								
49.	End Milling								
50.	End Mill (Two Lipped)								
51.	Face Milling								
52.	Gear Cut (Spur)								
53.	Grooving								
54.	Plain Milling								
55.	Side Milling								
56.	Spiral Head (Plain Index)								
57.	Speed of Cutting								
58.	"T" Slot (Mill)								
59.	Vise (Swivel) Use of								
60.	"V" Block (Set Up)								
	DRILL								
61.	Counter Bore								
62.	Countersink								
63.	Draw Over Centre								
64.	Drill for Tap								
65.	Drill Standard Hole								
66.	Grind Drill for Cast Iron								
67.	Grind Drill for Steel								
68.	Grind Drill for Thin Stock								
69.	Grind Drill for Brass								
70.	Jig and Fixture (Use of)								
71.	Layout (Centrepunch)								
72.	Ream (Rough Ream)								
73.	Ream (Standard Reamer)								
	SHAPER								
74.	Set Up Work (Angle Plate)								
75.	Set Up Work (Use Parallels)								
76.	Set Up Work ("V" Block)								
77.	Set Up Work (Vise)								
78.	Spot Face								
79.	Spot Two Pieces Together								
80.	Cut to Shoulder								
81.	Set Up (Use Vise)								
82.	Shape to Line Layout								
83.	Spline, Keyway in Hole								
84.	Spline, Keyway in Shaft								
	BENCH								
85.	File								
86.	Polish								
87.	Case Harden M. S.								
88.	Harden and Temper T. S.								

RECORD OF MECHANICAL DRAWING

Name Blue prints _____ Age _____

Address _____ Date _____

DRAWING ANALYSIS PROBLEM	GRADE	SHOP SKETCHING PROBLEM	GRADE	READING BLUE PRINTS PROBLEM	GRADE	TESTS GRADE

COMMENT:

_____ INSTRUCTOR

RECORD OF APPLIED MATHEMATICS

Name _____ Age _____

Address _____ Date _____

	DATE	GRADE
Unit 1 Fractions: Addition, Subtraction, Multiplication, Division; Units of Meas.; Reading and Use of Scale		
Unit 2 Decimals: Addition, Subtraction, Multiplication, Division; Change Frac. to Decimals; Significant Figures; Reading Mich. and Vernier		
Unit 3 Ratio and Proportion; Gear & Pulleys; Tapers; Amt. of Tail Stock set over		
Unit 4 No. pieces from length of stock and amt. of waste		
Unit 5 Simple areas and volumes		
Unit 6 Weights and Measures		
Unit 7 Cutting speeds, tools and time		
Unit 8 Tables		
Unit 9 Linear and Angular Meas.		
Unit 10 Right Triangle		

PROVIDENCE PUBLIC SCHOOLS — SHORT UNIT TRAINING RECORD

Exhibit III

Name _____ Address _____

Date or Birth _____ Place of Birth _____ Age _____

Last school attended _____ Married _____ No. of dependents _____

Highest grade completed _____ When completed _____

Evening Extension Courses _____

EMPLOYMENT RECORD

EMPLOYER	KIND OF WORK PERFORMED	LENGTH OF SERVICE

REMARKS: _____

TEACHERS ESTIMATE OF STUDENT

Mechanical Ability _____ Care of Mach. & Tools _____

Initiative _____ Cooperation _____

Effort _____ Carefulness _____

Interest _____

ATTENDANCE RECORD

ABSENT	TARDY

October 28, 1941

Major General William N. Porter
Chief, Chemical Warfare Service
War Department
Washington, D. C.

My dear General Porter:

The Women's Bureau has been making occupational analyses with a view toward bringing about an efficient use of women in private defense production. In this connection we surveyed the Picatinny and the Frankford Arsenals.

We are interested in the method of training women which has been developed at the Edgewood Arsenal. As we will be in that vicinity early next week, we would like to have permission given our field representatives, Martha Ziegler and/or Margaret K. Anderson, to visit the Edgewood Arsenal on November 4.

May we ask you to extend this courtesy to our staff members?

Sincerely,

Bertha M. Nienburg,
Assistant Director

BMN:LW

Defense Training

September 16, 1941

Mr. Ray K. Daily
1506 North Blvd.
Houston, Texas

My dear Dr. Daily:

I have referred your letter of September 11, in which you state you have not been able to get any cooperation for defense classes for women, to Col. Frank J. McSherry, Director of Defense Training, Federal Security Agency, Washington, D. C. I hope that some action will be taken by him.

I am enclosing three reports of studies by the Women's Bureau as to where women can best be inducted into the defense industries.

Sincerely yours,

Mary Anderson, Director

MA:IS

September 16, 1941

Col. Frank J. McSherry
Director of Defense Training
Federal Security Agency
Washington, D. C.

My dear Col. McSherry:

I am enclosing a letter from Dr. Ray K. Daily, President of the Board of Education, Houston, Texas. As you will see, he is complaining that he has been able to get no cooperation from the National Defense Training for instruction for women.

Sincerely yours,

Mary Anderson, Director

MA:IS

Members-Board of Education
Dr. Ray K. Daily, Pres.
Holger Jeppsen, Vice-Pres.
Mrs. B. F. Coop, Sec'y
Dr. Henry A. Petersen, Ass't Sec'y
E.D. Shepherd, Sr.
George D. Wilson
Alfred C. Finn

BOARD OF EDUCATION
Capitol and Caroline Streets
Houston, Texas.

September 11, 1941

Women's Bureau
Dept. of Labor
Washington, D. C.

Dear Miss Anderson:

I have read that in some cities women are receiving under National Defense training such courses as machine shop, radio communication, industrial chemistry, etc.

It is said that the office of education reports Fifty Thousand girls in federal reembursed classes. In our city, as President of the Board of Education, I have not been able to get any cooperation for defense classes for women and I am told that the Federal funds can not be applied for defense training for women.

I am writing to ask if you could give me some definite information on these rulings. I wonder if the Women's Bureau has given any thought to making an effort to have women participate in this very extensive defense program financed by the Federal Government. In this city at least this is so far limited to men.

Very cordially yours,

(Signed) Ray K. Daily

Ray K. Daily
1506 North Blvd.
Houston, Texas.

RKD:f

September 18, 1941

Dr. Ray K. Daily, President
Board of Education
Capitol and Caroline Streets
Houston, Texas

Dear Dr. Daily:

Miss Mary Anderson, Director of the Women's Bureau, U.S. Department of Labor, has referred to the Labor Division of the Office of Production Management your letter of September 11 requesting information regarding the establishment of defense training classes for the preparation of women for employment in defense occupations.

The policy of the Office of Production Management with reference to the training of women for defense production occupations is as follows: "Defense training programs should be set up for women workers where there are existing or anticipated employment opportunities for women in specific defense occupations. It is desired that the training of women workers for defense occupations be kept in step with policies adopted by the Office of Production Management to promote the employment of women as the general labor market tightens." Inasmuch as there must be a direct relationship between job opportunities and the individuals trained for these opportunities, training should not be established for women unless there are job opportunities for them in defense industries. I suggest, therefore, that this matter be taken up with the State Council of Administrators in Texas, which is made up of Mr. J. C. Kellam, State Administrator, National Youth Administration, 714 Brown Building, Austin, Texas; Mr. James R. D. Eddy, State Director for Vocational Education, Austin, Texas; and Mr. J. H. Bond, Texas State Employment Service, 201-15 Brown Building, Austin, Texas. This Council acts in connection with the policies and regulations promulgated by their respective Federal and State authorities and decide all questions in connection with the establishment and operation of public defense training programs in the State.

I am sure that when job opportunities in defense production open up for women workers that defense training classes will be established to meet this need.

Sincerely yours,

Thelma McKelvey
Assistant Chief
Labor Relations Branch

McKelvey:afs

INTERVIEW

Indiana Unemployment Compensation Office
Elkhart, Indiana
Mr. Montague, Director and
Miss Houston, Assistant
8/11/41

Up to the present, the office has been busy making placements. They cannot meet the demand for skilled machinists or hotel and restaurant employees.

Many men who have been able to commute have been employed at the construction of an arsenal near La Porte (Kingsbury), Indiana. In this shell loading plant they anticipate about 2,000 women will be employed, but as yet no interviews have been made in the Elkhart Office to supply this future demand. The engineering firm of Todd and Brown, New York, is in charge of the Kingsbury construction work.

Located in Elkhart is a branch of the Smolker dress factory of Chicago. In the latter place this firm has had anything but an enviable reputation in the past, so that the agent was much surpized to hear of the activities of a vocational school for the training of power machine sewers in Elkhart where Smolker's is the only large firm where power machine sewers could be employed. A few could be employed in two small bedding factories and in another small outlet in Goshen that is within commuting distance.

In Elkhart a few years ago the Gossard Corset Company had a large factory but was closed, although the Gossard in Logansport is still operating.

It was the impression of Mr. Montague that this vocational school was established upon the recommendations of someone from the Social Security Board in the Chicago office and an agent from Chicago of the OPM office. To his knowledge the Smolker Company has no defense orders and they are still making a cheap line of dresses for women. In setting up the school, the Vocational Board purchased 12 single needle machines. The instructor is Miss Meyers, formerly a home economic teacher but a supervising forelady at Smolker's before she took charge of the school.

At first there were 2 classes daily, 4 hours in the morning and 4 hours in the afternoon. Now they plan to concentrate with only 1 class 8 hours daily. The first groups of trainees taken on in November 1940 were from the WPA but these were not acceptable to the Smolker Company and were not hired by them, so since that experience the employment office has been recommending as trainees only those that are likely to get jobs with the Smolker Company.

An estimate of 150 to 200 trainees have probably gone through the school during 1941 and as far as known in the employment office the vast majority have been employed by the Smelter Company. The school was closed during the month of July but the employment office was at the time of the interview selecting 12 trainees for the course to start during the later part of August 1941.

Arrangements for this school were made before Mr. Montague was transferred to the Elkhart office and he seemed little acquainted with the procedure. However, Miss Houston seemed to have most of the facts and as far as she knows the employment office was not consulted at the time the arrangements for the school was made and feels that it is merely a feeder for an individual firm which is not actively engaged in defense work.

Elkhart has felt the effect of the priorities probably only in 1 line of its variety of manufacturing, and that is band instruments; the largest of which is the Conn Company. This firm is reported to be facing a 20% cut and none of the band instrument manufacturing companies have as yet made any adjustments which would enable them to manufacture other products. Women are employed by these firms in polishing, packing, and so forth.

Defense
Training

July 8, 1941

Miss Josephine Nelson
Associate Editor
INDEPENDENT WOMAN
1819 Broadway
New York City.

My dear Miss Nelson:

We have your letter of July 3d, requesting information for use in an article on the defense situation and opportunities for women teachers in trade and industrial education.

We are enclosing several of our recent reports on women and defense production and some material on the need and value of training women for defense jobs.

Our material is of interest as showing the kinds of work for which women might or should be trained and indicates possible opportunities for some women teachers.

As the Office of Education seemed to us the best source of information for your article, as to important trade and industrial schools for women and outstanding teachers connected therewith, we tried to get in touch with Louise Moore, who is in the Office of Education in charge of training of girls and women for wage-earning industry as part of the defense training program. We found that she was out of the City and would probably not be back for a week. However, we talked to Mrs. Zapoleon, who is in vocational guidance work in the Office of Education, concerning suggestions she had to offer. She thought Miss Moore might be a logical person to write the article, but also gave the two following names as persons for you to contact as possible writers or as sources of information of interest:

Miss Clara Krauter, Essex County Vocational School for Girls, Newark, N.J. (She is on the program committee of the American Vocational Guidance Association)

Miss Ethel Wooden, Whitney Vocational School, Toledo, Ohio. (She writes very well, Mrs. Zapoleon said)

The name of another person whom you might like to consult is Miss Blanche Penn, recently appointed as assistant supervisor, Connecticut State Board of Education, in charge of girls' trades. Connecticut is one of the few States that has been outstnading in training women for defense jobs. Rhode Island and Massachusetts are also of importance because of their industrial training of women, both at present and prior to the defense situation.

The National Education Association which we also consulted had no further suggestions than to corroborate the opinion that the Office of Education could be of most assistance. You may also find it of interest to write to Miss Greta Frankes of the National Youth Administration as to teachers of girls in the N.Y.A. training projects preparing them for defense work, as you would probably want to have that field of activity also covered in your article. The W.P.A. might have some helpful information too, in regard to its teachers along trade and industrial lines.

Copies of several newspaper stories are enclosed for what they may be worth to you. If we can be of further assistance we shall be glad to cooperate.

Sincerely yours,

Mary Anderson, Director.

MVT
cc

INDEPENDENT WOMAN

The National Federation of Business and Professional Women's Clubs, Inc., Publisher
New York, N. Y., 1819 Broadway, Columbus 5-3935

Winifred Willson
Editor

WOMEN'S BUREAU
JUL 5 - 1941
DEPARTMENT OF LABOR

July 3, 1941

Miss Mary Anderson
Chief, Women's Bureau
U. S. Department of Labor
Washington, D. C.

My dear Miss Anderson:

We are hoping to secure for the September issue of INDEPENDENT WOMAN an article on how the defense situation is influencing opportunities for women teachers in trade and industrial education. We should be most grateful for any material your office may have on the subject.

Besides general discussions, we should appreciate knowing of any schools where particularly interesting programs by or for women are being carried out. Are there outstanding women principals or teachers in the trade or industrial education field to whom you could guide us?

Do you chance to know of anyone who may have been making a special study of this pedagogical field who might, in consequence, be the right person to ask to write the article?

We shall be most appreciative of any help you can give us.

Sincerely yours,

Josephine Nelson

Josephine Nelson
Associate Editor

JN:C

July 3, 1941

Miss Goodykoontz
Assistant Commissioner
U. S. Office of Education
Federal Security Agency
Washington, D. C.

My dear Miss Goodykoontz:

I am attaching herewith the letter which I have sent to Dr. Elizabeth L. Woods, as suggested in your letter of June 26th.

Sincerely,

Bertha M. Nienburg,
Assistant Director

FEDERAL SECURITY AGENCY

U. S. OFFICE OF EDUCATION

WASHINGTON

June 26, 1941.

Miss Bertha M. Nienburg,
Assistant Director, Women's Bureau,
Department of Labor,
Washington, D. C.

Dear Miss Nienburg:

Dr. Elizabeth L. Woods, Supervisor of Educational Research and Guidance in the Los Angeles City Schools, has written to say

> "A group of Los Angeles school women will be meeting during the entire month of July in a study group at our Los Angeles City School Workshop to enlarge their knowledge of our present situation and to thrash out ways of making our schools more practicable for girls and women in view of the national defense effort."

She further says that she would like reports of what women and girls are doing here or in England or elsewhere and any labor statistics or plans which will help in guidance and curriculum revision.

This is a large order, I know, but if you have any materials which you think would be useful, I am sure Dr. Woods would be most appreciative.

Very sincerely yours,

Bess Goodykoontz

Assistant Commissioner.

July 3, 1941

Dr. Elizabeth L. Woods
Supervisor of Educational Research and Guidance
Los Angeles City Schools
Los Angeles, California

My dear Dr. Woods:

Bess Goodykoontz has written me that you will conduct a Los Angeles City School Workshop during July, to consider ways in which your schools may be made more practicable for women and girls in view of the national defense effort. She has asked us to send you material that will be helpful.

First: I am sending you our copy of the possible use of women in aircraft production. The many requests for this report from the aircraft industry leave no question but that it is seriously planning to employ women in the very near future. We believe it urgent for women's future in this industry -- and it is an industry which should afford employment to many women -- that the schools give the girl a background training in blue print reading, drafting, qualities of metals, and in other basic fields. With such background, she can develop into something more than a routine worker. When production is curtailed, if she is pushed out, she will have something of permanent value in seeking reemployment. The responsibility of the schools in this respect is all the more urgent, because the present personnel officers in the California aircraft plants are talking of taking on women now and pushing them all off when the heavy demands are over. With sufficient school background, women can demonstrate their usefulness and should become a permanent part of this industry.

Second: In 1940, we completed a survey of office workers in Los Angeles and four other cities. Unfortunately, defense demands have delayed the pulling together of this very valuable material. However, the material indicates the large number of positions of a semi-clerical nature connected with manufacturing plants in Los Angeles. They are jobs dealing with the giving out of materials, tools, checking up of production, and other matters that relate to the factory. Such jobs require a knowledge of materials and of tool uses, and ability to read blue prints and sometimes the ability to draft. Today most of these positions are held by men, but much of the work could be done by women if they were given the background knowledge to be useful in such positions. If, by any chance, the Los Angeles section of the report is ready before your conference is closed, I will try to send you a typewritten copy.

Third: We have issued a report on women's use on small arms ammunition and another on artillery ammunition. As far as our knowledge goes, plants do not manufacture these defense materials in your area. However, if you are interested, we will be glad to send copies.

Fourth: We are starting our study of women's use in the instrument and optical goods industry. This will be followed by one on airplane engines, on machine tools, and in other defense industries. We are also being asked to go into the non-defense industries, where shortages of labor are taking place. Each report will be issued as the findings are made.

Fifth: We have a report on women's employment in photography which is about to go to press, and can be sent to you.

Sixth: While there are many general statements concerning women's employment in England, specific material is sparse. We expect to have a confidential report on the details of their employment very soon. Whether it can be released or not, we are not sure at this time, as such matters have to clear through the Executive Office.

Unfortunately the 1940 census material, giving details by occupation, will not be available until next year. As soon as we can get at it, we hope to be able to analyze the occupational figures in detail.

Please call upon us for any assistance we may render you.

Sincerely,

Bertha M. Nienburg,
Assistant Director

BMN;ml

Defense Training

June 18, 1941

Miss Rachel C. Nason, Dean of Women
Hillyer Junior College
Hartford, Connecticut

My dear Miss Nason:

The Women's Bureau has been and is active in arousing the Federal Department of Education and local vocational schools to the need of giving women vocational education under the defense program. It is our task to determine what women can do and for what they should be trained. The Office of Education must decide upon the setting up of the classes and the giving of the funds.

I am sure you will be interested in our study of women's use in aviation for you have some plants in Connecticut. As aviation will be a permanent field of employment and as plants are now considering taking them on, we are most anxious that the girls be given sufficient vocational training to permit them to advance beyond the routine jobs. In addition to tasks outlined here there is a real need for women as supervisors of women. I am wondering whether a course in "Forewomanship" or "Lead" woman, as they are called in airplants, would not fall within the functions of a junior college.

It would be my suggestion that you confer with some of the employers in or near Hartford and also with your State vocational supervisor. Between them it ought to be possible to choose likely girls with some shop experience, and give them training in organization and in personnel management necessary for satisfactory supervisors.

As you probably know, the defense funds are not as yetaavailable for general types of service although regular vocational funds are always to be had if the State is willing to supplement them.

Sincerely,

Bertha M. Nienburg,
Assistant Director

HILLYER JUNIOR COLLEGE

HARTFORD. CONNECTICUT

WOMEN'S BUREAU
JUN 18 1941
DEPARTMENT OF LABOR

June 16, 1941

Miss Bertha Nienburg
Women's Bureau
U.S. Department of Labor
Washington, D. C.

Dear Miss Nienburg:

Mrs. Woodhouse, of Connecticut College, tells me that you are interested in developing emergency training courses for women. Hillyer Junior College is at present administering some of the Engineering Defense courses for this area, and, as Dean of Women here, I am very much concerned to do some work for women. There is an increasing need here for office secretaries, volunteer leadership, sales people and other specially trained girls.

Have you any information on similar training courses being developed elsewhere that you could share with me? It is possible that I can be in Washington next Monday, June 23, and if it would be useful I would greatly appreciate an appointment to talk with you personally. Letters will, of course, reach me at this address.

Cordially yours

Rachel C. Nason

Rachel C. Nason
Dean of Women

RCN:B

Defense Training

OFFICE OF PRODUCTION MANAGEMENT

SOCIAL SECURITY BUILDING

WASHINGTON, D. C.

WOMEN'S BUREAU
JUN 12 1941
DEPARTMENT OF LABOR

June 11, 1941

Miss Mary Anderson, Director
Women's Bureau
Department of Labor
Washington, D. C.

Dear Miss Anderson:

Thank you for your letter of June 6, in which you point out that recent surveys reveal that the number of women employed in defense industries has materially increased.

I understand that Miss McKelvey has already discussed with you a tentative approach to the training program, as well as considerations which will be essential if women are employed in large numbers in the aircraft industry, particularly in view of the fact that there are State laws governing the employment of women in manufacturing industries. At the present time a determination is being made of the anticipated occupational employment of women in the aviation industry in the Lockheed-Vega plant. As soon as this is available, concerted action will be taken to anticipate the conditions under which women will be employed, as well as other standards governing the employment of women in relation to the employment of men.

We will keep closely in touch with you on this matter, and hope that in the next two weeks more specific information will be available regarding the induction of women into the aviation industry.

Sincerely yours,

Floyd W. Reeves

Floyd W. Reeves, Director
Labor Supply and Training

Defense Training

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OFFICE OF PRODUCTION MANAGEMENT

OFFICE MEMORANDUM

WOMEN'S BUREAU
JUN 11 1941
DEPARTMENT OF LABOR

To: Miss Mary Anderson Date: June 10, 1941

From: Thelma McKelvey

Thelma McKelvey

Subject: Reported Shortage of Power Sewing Machine Operators in Chicago, Illinois

Relative to my conversation with you in connection with a reported shortage of power sewing machine operators in the Chicago area, I have received an investigative report from both the United States Office of Education and the Bureau of Employment Security. Neither one of these agencies can certify to a shortage of power sewing machine operators which justifies the expenditure of defense funds for the training of these workers.

Under the regular program of the vocational schools, covered by the Smith-Hughes, George Dean Act which provides funds for training in trade and industrial occupations, there has been instituted training courses for power sewing machine operators.

The Illinois agency of the Bureau of Employment Security states that they do not recognize a shortage of power machine operators in the Chicago area, except as artificial shortages are created as a result of restricting specifications by employers and by the eagerness of some employers to profit by the employment of beginners at 25¢ an hour under exemptions from the wage-hour law. A large percentage of the power sewing machine operators in the active files of the employment service of the Chicago central placement office are currently employed on W.P.A. sewing projects. The W.P.A. declines to penalize these workers for failure to accept beginner jobs in private industry. A survey of the files in the central placement office in Chicago reveals that there is a total of 2,726 power sewing machine operators in the active file, which are distributed as follows:

	White	Colored	Total
Garment Group	495	1,920	2,415
Leather other than boots and shoes	30	15	45
Other	123	143	266
Total	648	2,078	2,726

Unless further investigation reveals that a greater need for a defense training course in this occupation exists, we do not feel justified at this time in approving an expenditure of defense funds.

Miss Tenney for files

Defense

Training

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Los Angeles, California

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Division of Instruction and Curriculum

Arthur Gould
Deputy Superintendent

Adult and Vocational Education Section

Howard A. Campion
Assistant Superintendent

June 5, 1941

WOMEN'S BUREAU
JUN 13 1941
DEPARTMENT OF LABOR

✓

Miss Ethel Erickson
Supervisor of Field Investigations
U. S. Department of Labor
Women's Bureau
Washington, D. C.

Dear Miss Erickson:

Thank you for the material dealing with the place of women in the occupations essential to national defense.

We are watching the development of this field of work and will set up training as soon as the demand crystallizes.

The Vultee Aircraft Company is experimenting with a group of women workers in their factory. The outcome of the experiment may determine the nature of our participation in the program.

Very truly yours,

H. A. Campion

Howard A. Campion
Assistant Superintendent

HAC:sp

Federal Security Agency
U. S. OFFICE OF EDUCATION
Washington

EDT-Misc. 2

Defense Education — Files

ENGINEERING DEFENSE TRAINING

Regional Advisers

Regional Adviser	Address	Area for Supervision	Region Number
Dean E. L. Moreland	M. I. T. Cambridge, Mass.	Maine, Massachusetts, New Hampshire, and Vermont	1
Prof. L. E. Seeley	Yale University New Haven, Conn.	Connecticut and Rhode Island	2
Dean S. C. Hollister	Cornell University Ithaca, N. Y.	New York State (except New York City)	3
Dean J. W. Barker	Columbia University New York, N. Y.	New York City and Long Island	4
Pres. A. R. Cullimore	Newark College of Engineering, Newark, N. J.	Northern New Jersey	5
W. T. Spivey	Drexel Institute of Technology Philadelphia, Pa.	Eastern Pennsylvania, Southern New Jersey, and Delaware	6
Dean S. S. Steinberg	U. of Maryland College Park, Md.	District of Columbia and Eastern Maryland	7
Dean Blake R. Van Leer	N. C. State College Raleigh, N. C.	North Carolina, South Carolina, and Virginia	8
Prof. J. E. McDaniel	Georgia School of Tech. Atlanta, Ga.	Alabama, Florida, Georgia, Mississippi, and Eastern Tennessee	9
Dean F. L. Wilkinson, Jr.	U. of Louisville Louisville, Ky.	Kentucky, Southern Ohio, and Southwestern half of West Virginia	10
J. D. Beatty	Carnegie Inst. of Tech. Pittsburgh, Pa.	Western half of Pennsylvania, Northeastern half of West Virginia and Western Maryland	11
Dean C. E. MacQuigg	Ohio State University Columbus, Ohio	Northern half of Ohio	12

Regional Adviser	Address	Area for Supervision	Region Number
Dean H. B. Dirks	Michigan State College Lansing, Mich.	Southern Michigan	13
Pres. D. B. Prentice	Rose Poly. Inst. Terre Haute, Ind.	Indiana (except for Chicago industrial area)	14
Pres. H. T. Heald	Illinois Inst. of Tech. Chicago, Ill.	Illinois, Southern Wisconsin, and the Chicago industrial area in Indiana	15
Prof. H. O. Croft	U. of Iowa Iowa City, Iowa	Iowa, Minnesota, Nebraska, North Dakota, South Dakota, Northern Wisconsin, and Northern Michigan	16
Dean A. S. Langsdorf	Washington University St. Louis, Mo.	Arkansas, Kansas, Missouri, Oklahoma, Western Tennessee	17
Dean W. R. Woolrich	University of Texas Austin, Tex.	Louisiana and Texas (East of Pecos River)	18
Pres. M. F. Coolbaugh	Colorado School of Mines, Golden, Colo.	Colorado and Wyoming	19
Prof. R. L. Daugherty	Calif. Inst. of Tech. Pasadena, Calif.	Arizona, New Mexico, Southern California, and Texas (West of Pecos River)	20
Dean S. B. Morris	Stanford University Stanford University, Calif.	Northern California, Nevada and Utah	21
Prof. H. H. Langdon	State College of Washington Pullman, Wash.	Idaho, Montana, Oregon, and Washington	22

Federal Security Agency
U. S. OFFICE OF EDUCATION
Washington

EDT-Misc. 16

Engineering Defense Training Program
Courses Approved to December 30, 1940

Alabama

Alabama Polytechnic Institute Auburn	Construction Engineering Engineering Drawing Engineering Economy Industrial Relations Machine Design Marine Engineering Military Highway Engineering Naval Architecture Production Engineering Surveying Tool Engineering
University of Alabama University	Correlation Course for Ordnance Inspectors Industrial Organization and Management, Time and Motion Study Industrial Practice, Cast Iron Pipe and Fittings Industry Industrial Practice, Electric Power Industry Industrial Practice, Steel Industry Industrial Safety and Safety Administration Mechanics and Strength of Materials Mechanisms and Elementary Machine Design Physical Metallurgy and Metallurgy of Iron and Steel Tool and Die Design

Arkansas

University of Arkansas Fayetteville	Engineering Drawing

California

California Institute of Technology Pasadena	Production Engineering Production Supervision Radio and Electronics
University of Southern California Los Angeles	Materials Inspection and Testing (Unit A) Materials Inspection and Testing (Unit B) Materials Inspection and Testing (Unit C)

Colorado

Colorado School of Mines Golden	Production of Major Non-Ferrous Metals Theory and Application of Welding
Colorado State College of Agricultural and Mechanical Arts Fort Collins	Engineering Drawing Machine Design Materials Inspection and Testing
University of Colorado Boulder	Advanced Electronic Instruments Airplane Stress Analysis Engineering Drawing and Machine Design Machine Design Material Testing and Inspection Production Engineering Technology of Heavy Chemicals Industry Theory of Elasticity
University of Denver Denver	Testing of Chemicals and Other Defense Materials

Connecticut

Yale University New Haven	Applied Mechanical Design Engineering Drawing Inspection of Materials Metallurgy Production Control Welding Supervision

Delaware

University of Delaware Newark	Motion and Time Analysis

District of Columbia

George Washington University Washington	Concrete Inspection and Testing Construction Materials, Properties, Tests and Specifications Map Making and Interpretation Radio Communication Ship Construction Structural Steel Design Surface and Aerial Navigation
Howard University Washington	Engineering Drawing

Florida

University of Florida Gainesville	Engineering Drawing

Georgia

Georgia School of Technology Atlanta	Construction Materials Engineering Drawing Metal Inspection Textile Testing

Idaho

University of Idaho Moscow	Design Drafting Engineering Drawing

Illinois

Bradley Polytechnic Institute Peoria	Engineering Drawing
Illinois Institute of Technology Chicago	Design of Bombproof Shelters Design of Tools and Testing Equipment Diesel Engines Drafting and Elementary Design Industrial Management Inspection Methods Machine Design Metallurgy Production Planning Routing Strength of Materials and Steel Design Structural Designing and Drafting Testing and Inspection of Concrete Testing Methods Time and Motion Study Tool and Fixture Design Welding Engineering

Indiana

Purdue University Lafayette	Aeronautical Engineering Applications of Electronics Engineering Drafting Explosives Inspection Machine Design Materials Inspection Materials Testing and Inspection (2 courses) Metallurgy Production Engineering (2 courses) Production Supervision (2 courses) Tool Design (2 courses)
Rose Polytechnic Institute Terre Haute	Electrical Communication Engineering Drawing and Machine Design Illuminating Engineering Materials Inspection and Testing Production Engineering

Indiana (Continued)

University of Notre Dame South Bend	Chemical Analysis of Metallurgical Materials Production Engineering Physical Metallurgy Tool and Die Design

Iowa

Iowa State College Ames	Materials Inspection and Testing Tool Engineering

Kansas

Kansas State College Manhattan	Aeronautical Engineering Engineering Drawing Explosives Materials Inspection and Testing Tool Engineering
University of Kansas Lawrence	Aeronautical Engineering Engineering Drawing Machine Design Materials Inspection and Testing Production Engineering and Supervision

Kentucky

University of Louisville Louisville	Aerial Photographic Mapping Applied Mechanics (Statics) Elementary Unified Mathematics Ferrous Physical Metallurgy Non-Ferrous Physical Metallurgy Strength of Materials

Louisiana

Louisiana Polytechnic Institute Ruston	Engineering Drawing
Southwestern Louisiana Institute Lafayette	Engineering Drawing
Tulane University New Orleans	Engineering Drawing (2 courses) Machine Design

Maryland

Johns Hopkins University Baltimore	Electricity Applied to Aircraft Industrial Organization and Management Materials Inspection and Testing Mechanical Design for Radio Engineers Plastics Production Fundamentals Radio Engineering Time and Motion Study
University of Maryland College Park	Aeronautical Drafting and Design Aircraft Inspection Aircraft Tool Engineering Radio Engineering Radio Testing and Inspection

Massachusetts

Massachusetts Institute of Technology Cambridge	Aeronautical Engineering Aircraft Engines Applications of Metallography Applied Mathematics Dynamic Analysis of Servomechanisms Engineering Fundamentals Exterior Ballistics Instrumentation and Vibration Measurement Marine Engineering Naval Architecture Ordnance Inspection Textile Testing Vibrations and Their Applications
Northeastern University Boston	Applied Mechanics Elementary Airplane Structures Engineering Drawing Higher Mathematics Instrumentation Machine Design (2 courses) Materials Inspection and Testing (2 courses) Methods Engineering Production Engineering and Supervision Production Supervision
Tufts College Medford	Applied Mathematics Chemistry in National Defense Concrete Inspection and Construction Engineering Drawing Foreman Conferences and Instructor Training Machine Design Physical Metallurgy Production Engineering Radio Engineering Theory and Practice of Welding

Massachusetts (Continued)

Worcester Polytechnic Institute Worcester	Elements of Machine Design Elements of Tool Engineering Materials Testing and Inspection

Michigan

Detroit Institute of Technology Detroit	Machine Design Tool and Die Design
Michigan College of Mining and Technology Houghton	Engineering Drawing Machine Design Materials Inspection and Testing
University of Detroit Detroit	Aeronautical Engineering Drawing, Descriptive Geometry, and Shop Mathematics Materials Inspection and Testing Production Engineering Production Supervision
University of Michigan Ann Arbor	Machine Design Materials Inspection and Testing Production Engineering and Supervision Tool Engineering
Wayne University Detroit	Electronics Engineering I Engineering Drawing I Engineering Drawing II (Descriptive Geom.) Engineering Drawing III (Freehand Drawing) Industrial Organization and Factory Management Machine Design Material Testing Metallurgy Shop Processes, Mathematics and Measurements Telephone Communication

Minnesota

University of Minnesota Minneapolis	Engineering Drawing Machine Design Metallurgy and Metallography Optical Engineering

Mississippi

Mississippi State College State College	Engineering Drawing Materials Inspection and Testing Tool Engineering

Missouri

Washington University St. Louis	Machine Design Material Inspection and Testing Production Engineering Production Supervision Tool Engineering

Nevada

University of Nevada Reno	Civil Engineering Drawing

New Hampshire

University of New Hampshire Durham	Engineering Drawing

New Jersey

Newark College of Engineering Newark	Engineering Drawing Machine Design Materials Inspection and Testing
Rutgers University New Brunswick	Machine Design
Stevens Institute of Technology Hoboken	Elements of Engineering Drawing Introduction to Engineering

New Mexico

New Mexico College of Agricultural and Mechanical Arts State College	Engineering Drawing Machine Design Materials Inspection and Testing

New York

Cornell University Ithaca	Advanced Stress Analysis and Elastic Stability Electronics Materials Testing and Physical Metallurgy Mechanics and Elementary Aircraft Design
New York University New York City	Aerial Bombardment Protection Aircraft Stress Analysis Procedure Elements of Advanced Aircraft Engine Design Food Inspection Fundamentals of Aircraft Fitting Design Gaging and Inspection Methods Heat Treatment of Aluminum Alloys Introductory Aerodynamics Marine Engineering

New York (continued)

New York University (continued) New York City	Materials Testing with Laboratory Metallurgy and Metallography Military Sanitation Production Control Time and Operation Study
Pratt Institute Brooklyn	Engineering Drafting and Practice Production Engineering
Union College Schenectady	Chemistry of Metals Design of Highly Stressed Structures and Apparatus Drafting and Drafting Room Practice Electron Tubes and Their Applications Elementary Electrical Theory and Practice Elementary Mechanics and Strength of Materials Engineering Materials and Manufacturing Methods Engineering Problems and Their Mathematical Solution Industrial Applications of Optics Industrial Chemistry Internal Combustion Engines Methods Improvement by Motion Study Principles and Practice of Radio Communication Production and Cost Control Tool Design

North Carolina

Agricultural and Technical College Of North Carolina Greensboro	Materials Inspection and Testing
Duke University Durham	Communication Engineering Machine Design
North Carolina State College Raleigh	Aircraft Inspection Chemical Testing and Inspection Diesel Engineering Engineering Drawing Experimental Electronics Instrument Men and Topographers Machine Design Materials Inspection and Testing Production Engineering Production Supervision

North Dakota

University of North Dakota University	Engineering Drawing Materials Inspection and Testing

Ohio

Case School of Applied Science Cleveland	Electrical Maintenance and Control Elements of Motion Economy Engineering Surveying Explosives Fundamentals of Machine Design Industrial Instrumentation Inspector and Metallurgical Technician Training Internal Combustion Engine Testing Machine Detailing
University of Cincinnati Cincinnati	Materials Inspection and Testing Production Supervisor
Fenn College Cleveland	Engineering Drawing Material Inspection and Testing Non-Metal Material Testing Production Engineering Production Supervision Stress Analysis Structural Detailing Tool Engineering
Ohio State University Columbus	Air Navigation Communications Laboratory Technique Design of Chemical Plant Machinery and Equipment Engineering Drawing Explosives Inspection of Materials of Chemical Industry (A.S.T.M. methods) and Chemicals Inspection of Construction Materials Inspection of Instruments Inspection and Testing of Small Electrical Power Units Inspection and Testing of Small Internal Combustion Engine Power Units Inspection of Steel and Cast Iron Products Inspection of Welded Products Machine Design Physical Metallurgy Production Engineering Production Supervision Tool Engineering Welding Engineering Design

Oklahoma

Oklahoma Agricultural and Mechanical College Stillwater	Engineering Drawing Machine Design Materials Inspection and Testing Production Engineering Tool Engineering
University of Oklahoma Norman	Aeronautical Engineering Engineering Drawing (2 courses)

Oregon

Oregon State College Corvallis	Aeronautical Engineering
Bucknell University Lewisburg	Engineering Drawing Materials Inspection and Testing Production Engineering
Carnegie Institute of Technology Pittsburgh	Cost Control Elementary Industrial Chemistry Elements of Metallurgical Engineering Engineering Drafting Industrial Relations Machine Design Production Engineering Production Supervision Testing and Inspection
Drexel Institute of Technology Philadelphia	Chemical Plant Operation Electrical Circuit Theory, Machines and Instruments Machine Design Marine Electrical Engineering Production and Tool Engineering
Grove City College Grove City	Engineering Drawing
Lehigh University Bethlehem	Instrument Design Machine Design
Pennsylvania State College State College	Diesel Engineering Electronics and Electron Tubes Elementary Engineering Drafting Elementary Machine Design Elementary Tool Design Fuel Technology Operation Inspection Petroleum Refinery Control Physical Metallurgy Physical Testing of Materials (2 courses)

Pennsylvania (continued)

Pennsylvania State College State College (continued)	Pre-Foremanship Training in Production Supervision Production Engineering (2 courses) Pyrometry Test Calculations and Instrumentation Time and Motion Study
University of Pennsylvania Philadelphia	Chemical Engineering for Production Supervision Diesel Engineering, Design and Construction Machine Design Motion Study - Time Study - Wage Incentives Physical Metallurgy Production Engineering Production Management Production Supervision Safety Engineering
University of Pittsburgh Pittsburgh	Engineering Materials Inspection and Testing Machine Design Machinery Inspection and Testing Mechanical Drawing and Descriptive Geometry Metallurgical Inspection Production Engineering Production Planning

Rhode Island

Brown University Providence	Elements of Machine Design Engineering Drawing Engineering Mathematics Jig and Fixture Design

South Carolina

Clemson Agricultural College Clemson	Elementary Drafting (2 courses)

South Dakota

South Dakota State College Brookings	Machine Design

Tennessee

Tennessee Polytechnic Institute Cookeville	Engineering Drawing

Tennessee (continued)

University of Tennessee Knoxville	Electric Communications Elementary Mathematics for In-Service Training Materials Inspection and Testing
Vanderbilt University Nashville	Engineering Drawing Machine Design Materials Inspection and Testing

Texas

Agricultural and Mechanical College of Texas College Station	Aeronautical Engineering Aircraft Inspection Camp Sanitation Engineering Drawing Material Inspection and Testing
Southern Methodist University Dallas	Engineering Drawing Production Supervision
Texas College of Arts and Industries Kingsville	Engineering Drawing
Texas Technological College Lubbock	Production Engineering
University of Texas Austin	Engineering Drawing Materials Inspection and Testing (2 courses) Soil Mechanics Laboratory Technique Structural Drafting

Utah

University of Utah Salt Lake City	Aeronautical Engineering General Metallurgy Industrial Electronics Machine Design Materials Inspection and Testing Mechanical Drawing and Descriptive Geometry Ore Dressing

Vermont

Norwich University Northfield	Engineering Drawing

Virginia

University of Virginia Charlottesville	Engineering Drawing Industrial Electronics

Virginia (continued)

University of Virginia Charlottesville (continued)	Materials Testing and Inspection Production Supervision Principles of Radio Simple Aerodynamics and the Airplane

Washington

State College of Washington Pullman	Engineering Drawing
University of Washington Seattle	Advanced Mechanics of Structures Aircraft Descriptive Geometry Aluminum and Its Alloys Design and Operation of Radio Equipment Fundamentals of Aerodynamics Fundamentals of Communications Hull Fittings and Mechanical Devices in Warship Construction Junior Marine Engineer Mechanical Engineering (Heat and Ventilation) Mechanics of Structures Metallography Naval Architecture Naval Architecture and Ship Drafting Naval Practice in Electrical Engineering Ordnance Design Ship Piping Design for Mechanical Engineers Technical Sketching

West Virginia

West Virginia University Morgantown	Drafting and Designing Metallurgy Process Engineering (Chemical) Production Supervisors Testing and Inspection

Wisconsin

Marquette University Milwaukee	Materials Inspection and Testing Production Engineering

Wyoming

University of Wyoming Laramie	Engineering Drawing

Puerto Rico

University of Puerto Rico Mayaguez	Communication Engineering

Training

FEDERAL WORKS AGENCY
WORK PROJECTS ADMINISTRATION
1734 NEW YORK AVENUE, NW.
WASHINGTON, D. C.

HOWARD O. HUNTER
ACTING COMMISSIONER OF WORK PROJECTS

February 5, 1941.

Miss Mary K. Morris
Division of Public Information
Women's Bureau
Department of Labor
Washington, D. C.

Dear Miss Morris:

In accordance with the telephone conversation which you had with my office recently, I am enclosing a copy of the press release of December 31, 1940, regarding Home Defense activities, together with a copy of Training Women for Defense.

My Special Assistant, Mrs. Izetta Jewel Miller is familiar with all details of this activity, and, if you wish further information, I know she will be glad to talk with you. She can be reached at District 2310, Extension 345.

Sincerely yours,

Florence Kerr

Florence Kerr
Assistant Commissioner

Enclosures - 2

TRAINING WOMEN FOR DEFENSE

Fields of Training in which millions of Women can engage - all related directly to Social Defense on the Home front:

FOOD - Training Programs can be established immediately in subjects related to food, food conservation, food handling, gardening, canning, mass feeding, food distribution in emergencies, vitamins and their importance, food for children, food for the ill, diet, nutrition and many other topics related to food and the home front.

APTITUDE TESTING - Immediate training can be given to large groups in how to conduct aptitude tests. Later, on a volunteer basis, millions of women can be inspired to subject themselves to the tests as volunteers as means of proper placement in Social Defense activities and, where appropriate, in Defense Industries (Manual dexterity, for example.)

FIRST AID AND SAFETY FIRST - Comprehensive nation-wide programs under which every woman in America could be invited to enroll in a Red Cross First Aid or a National Safety Council Safety First Course.

Traffic Safety courses could similarly train women everywhere as aides in traffic problems.

TRAINING IN SPANISH - On a volunteer basis present and ex-teachers of language could develop nation-wide opportunities for classes for women in Spanish. Western hemisphere relationships give such training universal appeal and many women will respond to such an opportunity to better equip themselves for world citizenship.

TRAINING IN COMMUNITY ORGANIZATION - How to get things done in the Community, setting up Committees, outlining their functions, planning objectives - all constitute needed training for women.

TRAINING IN MAP READING, MAP MAKING, DRAFTING - Making maps of greater value in comprehending the geography of America, in touring, in every-day life and in emergency will provide a big field of training for women.

TRAINING AS CIVIC AIDES - Training programs in all branches of civic service under which as volunteers women can assist in local health, welfare and other civic service, checking weights and measures, controlling school crossing traffic determining services needed in Community Centers.

TRAINING IN VOLUNTEER LEADERSHIP OF GIRLS (10 - 18) - Cooperating with private organizations, such as Girl Scouts, Campfire Girls, and other recreation groups, great numbers of women can be trained and interested in performing their Social Defense service through volunteer leadership of girls.

In all fields of recreation, athletics for girls, women are needed for leadership and must be trained for service.

Live discussion group programs for girls of teen ages could provide great character-building and patriotism installing opportunities and offer a chance for service to hundreds of thousands of women who first would need training to do the job.

PRE-VOCATIONAL AND VOCATIONAL TRAINING - Huge program of Pre-vocational and vocational training would bring opportunity to many hundreds and thousands of women now perhaps denied employment because of lack of some specific training.

The Aptitude Test Program, cooperating with Pre-Vocational and Vocational Training Program, could provide women with Training in vocations.

PROVIDING 100% OF AMERICA'S CHILDREN WITH SCHOOL LUNCHES - Extending the school lunch programs so that 100% of America's children benefit, calls for the services of a million women. Another million could serve by securing the food for school lunches.

One of the most challenging opportunities for Training would be embodied in this program.

TRAINING IN HEALTH - Community needs in health, home hygiene, sanitation, health care of children, services volunteers can perform for clinics, disease prevention and dozens of other subjects related to Community Health point training needs for women in Health fields. Every woman in America is potentially interested in Health Training.

Social Defense demands Health Training!

Training in office work, aid to handicapped, sewing, nursery schools, settlement work, communications, auxiliary nursing, club leading, and many other fields would be offered to the women of America in the program of Training for Social Defense.

For every need, there are American women ready to be of Service to their country.

PRESS RELEASE - DECEMBER 31, 1940

MRS. FLORENCE KERR
ASSISTANT COMMISSIONER
WORK PROJECTS ADMINISTRATION

The women of America traditionally concerned with social welfare in home and community represent a tremendous force for the Home Defense of America.

Our American women do not want to wait for a war situation to give them a chance to help their country; they know there are Home Defense jobs to be done in every home town in America right now.

They are waiting for word from their Government telling them how they can serve in the present national situation which may become a national emergency.

Millions upon millions of American women are ready to be "mobilized" in their own home towns for a program of action in this vital field of Home Defense.

Adequate defense of America must include provision for expansion and development of some of those primary welfare services which make America a better, healthier, happier place in which to live.

"You can't suspend a way of life while you go out to defend it, and expect it to be waiting for you when you get back," said Mrs. Florence Kerr, in discussing her plans for Training women of America for Defense Activities on the Home Front.

"We are going to step lively so as to avert losing any of the energy that is awaiting leadership and training. We are preparing programs which I want you to visualize as training literally millions of American women for the many services we know are needed for social

and home defense. The women of America are going to be trained, organized and ready for service in every urgency and every emergency which may come.

Fields of training in which millions of women will be engaged for Defense on the Home Front will include:

Food Training Programs, dealing with all subjects related to food, food conservation, food handling, gardening, canning, mass feeding, vitamins and their importance, food for children, food for ill, diet, nutrition and many other topics related to food and the home front.

Training in Aptitude Testing, First Aid and Safety First, community organization, map reading, map making, drafting, programs for children, programs for civic aides, pre-vocational and vocational training, community health, sanitation and hygiene, communications, auxiliary nursing and dozens of other fields of service.

"For every home defense need," concluded Mrs. Kerr, "there are American women ready to be of service to their country, and Federal leadership must provide training opportunities so comprehensive and so broad that every woman in every home town in the nation who wants to do so can find her place in America's mobilization of women for Home Defense."

FEDERAL SECURITY AGENCY

U. S. OFFICE OF EDUCATION

WASHINGTON

WOMEN'S BUREAU
MAY
DEPARTMENT OF LABOR

February 1, 1941

Miss Mary Anderson
Director, Women's Bureau
U.S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

In accordance with your telephone request of January 31, I am sending you a memorandum on Training of Women for Industry for the use of Secretary Perkins in her speech at the National Education Association meeting at Atlantic City.

Yours very truly,

Louise Moore

Louise Moore
Agent, Industrial Education
for Girls and Women

Encl.

February 1, 1941

MEMO - Training of Women for Industry

Enrollments in day trade classes for girls reimbursed from Federal funds under the Smith-Hughes and George-Deen Acts for the year ending June 30, 1940 were about 46,000. (The enrollment of boys in day trade classes for the same period was approximately 150,000.) Selection of courses for both boys and girls is the responsibility of local Trade and Industrial Education authorities. There must be local need for the number of trainees taught each year and the vocation must be one requiring at least 540 clock hours and 135 hours of related work a year previous to initial placement. The largest number of girls enrolled in day trade classes was on men's and women's garment work, including trade dress-making, tailoring, and construction of garments on power machines. 51% of the total enrollments were in garment work. Cosmetology enrolled 13% of the total; commercial foods, 10%; millinery, 6%; commercial art, 2%; household service, 2%. The remaining 16% of the enrollments were distributed among 40 other occupations, among them bookbinding, cleaning and dyeing, and practical nursing.

Since the passage of the national defense training act, which became effective July 1, 1940, classes in occupations designated as "defense" have been carried on by the Trade and Industrial training departments in the various States. Defense occupations are designated only by the Advisory Committee to the Council on National Defense. So far this list includes fourteen occupations in none of which women are normally engaged in large numbers.

Under the defense training act, the local communities in general supply the school and equipment. The Boards of Vocational Education pay for the teachers and supervisors and the cost of supplies, and are reimbursed for their expenditures by State Departments of Vocational Education with Federal money distributed through the Vocational Division, Office of Education.

The number of women trained under the defense training act has been small. As the supply of male workers is depleted women will be trained in defense occupations. Practically every State Supervisor of Trade and Industrial Education has already made detailed plans for training women in various occupations in defense, either in separate classes or with men. State laws will probably prevent the enrollment of women in defense training classes when these classes are held between the hours of 10:00 p.m. and 6:00 a.m. A very large number of defense training classes are held during these hours when the schools are not in use by regular classes or by supplementary courses for workers

already employed.

Local communities set up defense training classes to meet the needs for workers in the occupations designated as defense industries. The United States Office of Education exercises no jurisdiction over their choice of either occupations or trainees, provided local need for workers in defense industries is present or likely to be present and provided the trainees are chosen without regard to race, creed, color, or sex, but are chosen to meet the needs of local industries as these needs are defined by the Advisory Committees representing Labor and Management which are functioning in all localities.

April 17, 1943

Miss Anne Ketcham
Women's Personnel Assistant
Central Services Division
Remington Arms, Inc.
Bridgeport, Connecticut

My dear Miss Ketcham,

We have been asked on many occasions for information on women in personnel and industrial relations work, and we are getting together a description of duties of some dozen women. We have made no survey nor have we sent out questionnaires, our compilation being based on what has come from our field agents (along with other data) and what is told in letters from women personnel officials, who have written for our bulletins and pamphlets. At the time of your visit to the Bureau last fall, Mrs. Nyswander made a few notes, and this is what we wanted to include about your job (neither your name, nor the name of the company, appears):

> A nationally known ammunition company, with five large plants in different sections of the country, employed a woman for the personnel section of its central-services division (operating for all plants). Her duties include the selection of women for plant jobs; she aids in matters of conversion of jobs to women where only men had been used before, and in addition she is in charge of technical and supervisory personnel matters.
>
> On first being employed, to make sure she would understand the different kinds of jobs women were to be hired for, she asked for production-line assignment. In the company plant which was located in the city where the headquarters office also was, she moved from department to department, working on practically every job in production. When she returned to the personnel section of the central-services division, she had first-hand acquaintance with women's work and was aware of special problems.
>
> She is developing plans for group leaders from among the women employees themselves, and assists in the training program for them.
>
> She had had previous experience with the State Employment Service.

If this is not adequate, or needs correction, will you please edit it, and return at the earliest moment?

Sincerely yours,

rfn

Director

ADVANCE RELEASE

Miss Nienburg
War Man Power
Commission

ADVANCE RELEASE: FOR MONDAY MORNING PAPERS, OCTOBER 19, 1942
Greenblatt-WIC 2931-

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION

PM-4044

Acting on the recommendation of the Women's Advisory Committee, Chairman Paul V. McNutt of the War Manpower Commission today issued a statement of policy calling for intensified recruitment and training of women workers on a voluntary basis in all phases of war production and essential civilian activities.

The policy, which lays down basic national standards for the induction of women into the labor market, was approved by the Commission and also by its National Management-Labor Policy Committee.

Salient points in the statement are that management and labor organizations should remove all barriers against the employment of women in any occupations for which they are or can be fitted, and that women be admitted on a basis of equality with men to all forms of training. Due regard is to be given however, to the individual's qualifications for work, the physical requirements of occupations, and to working conditions. Included are on-the-job training in plants, and upgrading, with free access to foremen's, supervisory, and technical jobs.

Employers are asked to analyze all jobs in their plants, at once, to determine which can be filled by women and to prepare for employing the largest possible number.

Mr. McNutt said that plans for implementing the policy now are underway. The Regional Manpower Directors and the 10 newly appointed area directors are being instructed to give immediate attention to the program in areas of labor shortage. Special local womanpower campaigns, such as those recently undertaken in Detroit and Baltimore under Manpower Commission auspices, are being studied carefully, he said, to determine the best methods for recruiting new women workers and employing them successfully.

Pointing out that the need for women workers varies greatly from one community to another, with the demand concentrated in areas of labor scarcity, Mr. McNutt emphasized that womanpower programs must be planned carefully on a local basis to meet local needs. In this connection, the policy statement recommends that all-out recruiting of women should be undertaken in any locality only upon advice from the War Manpower Commission that a labor shortage exists or is immiment in the locality, and that additional women workers are required. Under those circumstances, the recommendation is that "all women able to accept employment register for employment or training with the nearest local office of the United States Employment Service."

Every effort is to be made, the policy states, to recruit and refer women, including older women, for jobs and training on the basis of their qualifications for an occupation, without discrimination because of race, national origin, or creed. Women are warned, however, not to leave their home communities to look for work or training elsewhere without first registering at their nearest U. S. Employment Office and finding out whether jobs or training are available in other localities.

(OVER)

With regard to wage rates for women, the policy recommends the principle of equal pay for equal work, stating that wage rates "be determined on the basis of the work performed, irrespective of sex." It also recommends appropriate safeguards regarding hours of work for women, adequate meal and rest periods and facilities for medical care, health and safety. One day of rest in seven, an 8 hour shift and a maximum 48 hour week, except in case of emergency, are considered necessary to maximum production efficiency.

Employment of women with young children is not recommended until full use has been made of all other sources of local labor supply. Where this is necessary, either because of intense labor shortage or because the individual finds it necessary to work, the policy recommends that adequate community child-care programs be set up and that the work shift be adjusted so as to cause the least possible disruption of family life.

The full text of the Policy on Recruiting, Training and Employment of Women Workers is attached.

WAR MANPOWER COMMISSION

Policy on Recruitment, Training and Employment of Women Workers

The increase in our armed forces and the expansion of the war production program necessitate the maximum utilization of our labor resources. The present number of gainfully employed workers, both men and women, is inadequate to fill even the immediate requirements of the war production program. In many areas the lack of adequate housing and transportation facilities compels full use of the local labor supply. These considerations require that substantially increased numbers of women be employed in gainful occupations in war production and essential civilian employment, especially in areas of labor scarcity. The recruitment and training of women workers must be greatly expanded and intensified. In carrying out this program for the utilization of women workers, normal family life should be preserved and maintained to the maximum extent consistent with all-out production. The active cooperation of Government agencies, educational institutions, management, labor, and women able to accept employment is essential.

To promote the rapid and orderly induction of women into the labor market and to insure their subsequent employment and training opportunities, the War Manpower Commission hereby declares as basic national policies for the recruitment, referral, training and employment of women that:

I. Recruitment and Referral of Women Workers

(a) Qualified women who are unemployed and who are registered in local offices of the United States Employment Service be referred to employment and training opportunities on a basis of equality with men, due regard being to their qualifications for the available work, to the physical requirements of the occupations, and to working conditions;

(b) Women without children under 14 years of age be actively recruited for employment and training, but this principle shall not be construed to mean that women who are responsible for the care of young children and who desire work are to be deprived of an opportunity for training or employment;

(c) Special efforts to secure the employment of women with young children be deferred until all other sources of local labor supply have been exhausted, in order that established family life will not be unnecessarily disrupted;

(d) In those areas in which industrial concentration and lack of housing, transportation, and other community facilities compels the fullest utilization of every labor resource in the locality, every effort be made to utilize fully, women qualified and able to contribute to war production or essential civilian employment before workers are recruited from outside the locality;

(e) Adequate facilities be provided for the care of the children of working mothers, which facilities should be developed as approved community projects and not under the auspices of individual employers or employer groups;

(f) Every effort be made to recruit and refer women, including older women, for employment or training on the basis of their qualification for an occupation without discrimination because of race, national origin or creed.

II. Training of Women Workers

(a) Where pre-employment training is desirable and employment opportunities are or will be available, women be referred to war production pre-employment training courses conducted by public vocational schools on a basis of equality with men; that is, on the basis of their qualification for the occupation in which training is offered, due consideration being given to the physical requirements of the occupation;

(b) Women be admitted on a basis of equality with men to enrollment in the Engineering, Science, and Management War Training Program conducted by colleges, universities, and technical schools in cooperation with the United States Office of Education;

(c) Women workers now employed be encouraged to enroll in supplementary war training courses conducted by public vocational schools, in order that a greater number of women may prepare themselves for additional responsibilities and for upgrading within the plant;

(d) Women participate equally with men in plant training programs. Such programs should include adequate induction training, on-the-job training, upgrading, training for women foremen and supervisors, and technical training.

III. Employment of Women Workers

(a) Management and labor organizations remove all barriers to the employment of women in any occupation for which they are or can be fitted;

(OVER)

(b) Every method available be utilized to assure that women workers be completely accepted as a part of the Nation's manpower needed for all-out production;

(c) In order to provide a basis for efficient selection of women for training and job assignment and to increase the number of women employed, management immediately analyze all occupations within the plant from the unskilled to the technical levels; determine the types of work that women could do; take steps to prepare the plant for the maximum employment of women; consult with its supervisory staff and representatives of its employees' labor organizations in order to promote acceptance of women as co-workers and to help new women employees adjust to their working environment; and periodically review practices and policies and make such additional adjustments as are necessary to obtain full utilization of women;

(d) Wage rates, including the entrance rate, be determined for all workers on the basis of the work performed, irrespective of sex;

(e) The following basic principles whether or not incorporated in State laws and regulations be applied and preserved in order to promote maximum production efficiency and to safeguard the health and welfare of women workers:

(1) One day of rest in seven;

(2) An 8-hour shift and a maximum 48-hour week, except to the extent that temporary exemptions under adequate safeguards are necessary to meet emergencies;

(3) Adequate meal and rest periods or time, and proper facilities therefor; adequate medical care and other safeguards for health and safety;

(f) Every reasonable effort be made to adjust assignments to shifts of women with young children, in such manner as will cause the least disruption in their family life.

IV. Women Able to Accept Employment

(a) Upon advice from a representative of the War Manpower Commission that additional women workers are required in their locality because of existing or imminent labor shortages, all women able to accept employment register for employment or training with the nearest local office of the United States Employment Service;

(b) Women interested in work outside their locality not leave their own community in search of work or training in another community without first

(1) registering for employment at the nearest local office of the United States Employment Service; and

(2) securing advice from such office that such work or training is available.

CROSS REFERENCE SHEET

Name or Subject Training

File No. DEFENSE

Regarding Job Instructor Training (Training-with-in Industry)
Letters to Dooley & from Dooley, and to Whitehall, Conn. Letter from Miss Ziegler.

Date Sept. 4, 1942.

SEE

Name or Subject MACHINE TOOLS

File No. DEFENSE

File cross reference form under name or subject at top of the sheet and by the latest date of papers. Describe matter for identification purposes. The papers, themselves should be filed under name or subject after "SEE."

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FILE NO. 13:D

FEDERAL SECURITY AGENCY
SOCIAL SECURITY BOARD
WASHINGTON

BUREAU OF EMPLOYMENT SECURITY

August 17, 1942

WOMEN'S BUREAU
AUG 19 1942
DEPARTMENT OF LABOR

Miss Mary Anderson
Director, Women's Bureau
U.S. Department of Labor
Washington, D.C.

Dear Miss Anderson:

Thank you for your note of August 14 relative to the reported action of the employment office in Akron, Ohio. I am asking our regional office to kook into this and let me have a report immediately.

Very sincerely yours,

John J. Corson

John J. Corson, Director
U.S. Employment Service

August 14, 1942

Mr. John J. Corson, Director
Bureau of Employment Security
Social Security Board
Federal Security Agency
Washington, D. C.

My dear Mr. Corson:

This is the case that I spoke to you about at the Secretary's luncheon.

Miss Elisabeth Magee, our representative on the Regional Labor Supply Committee in Ohio, was asked by the State Employment Service to help them in recruiting women for aircraft training and employment in Akron.

Goodyear Aircraft takes colored men on production but has so far refused to take colored women. The Employment Service will not accept Negro women for aircraft training (V.E.M.D.) The excuse is that they cannot get jobs.

In so far as training is concerned, Miss Magee feels that there will be openings later for the colored women and that they should not be refused training now, as many women will be needed and they will have to take the colored women.

A community-wide committee is planned to aid in recruiting women. As we will be, through Miss Magee, actively cooperating in recruiting women through this committee, it will seem like one Government agency is furthering the training of women, whether white or colored, while another Government agency will not accept colored women for training.

I told Miss Magee that I would report this situation to you and that as far as the Women's Bureau is concerned, we would stand for the training and employment of colored women.

Sincerely yours,

Mary Anderson, Director

MA:IS

August 12, 1942

Memorandum of Miss Magee's telephone call August 12.

The State Employment Service wants our help. I was over there yesterday making a survey of the situation. They have wonderful training facilities in aircraft. They cannot get enough women for their needs. It is very good and well set up. They have a diminished number each week for the training. They are practically assured a job. It is 120 hours, which is about three weeks. It is Government training. Some finish in two weeks and are being taken right on.

One of the things that I recommended is the organizing of a committee of women from different organizations to be advisers on recruiting. They can get around and think of ways in which they can make an appeal to clubs and groups who might not otherwise think of applying.

Here is the catch in it. Goodyear Aircraft is the only one operating. Firestone is going to do a similar operation. This is the one so far operating on a very big scale. They take colored men on production. Have so far refused to take colored women. The Employment Service has done something I disapprove of. They are not accepting Negro women for aircraft training. (V.E.N.D. training) The excuse is that they cannot get jobs. There will be other openings later but so far Goodyear is the only one operating.

In planning this community-wide committee we would naturally lay ourselves open to a very funny situation. The Women's Bureau is actively cooperating in recruiting and then there is this group that another Government agency won't accept for training. (Miss Anderson said we have to stand out for employment of colored women.)

Do you want to report it to Mr. Corson. Already information has been sent to him from here. You might make it stronger if you would report it, too.

August 5, 1942

Miss Mary Ross
Women's Counselor
The Glenn L. Martin-Nebraska Company
Omaha, Nebraska.

My dear Miss Ross:

We are sending you, in response to your request of August 1st, information we have issued on women in war industries.

If you have any questions, after reading this material, we shall be glad to have you write us further.

Sincerely yours,

Mary Anderson, Director

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enc. Sp. 1,2,3,m etc. available, MTM speech, Bul. 189-1,2,3,4,m typ. oper.

THE GLENN L. MARTIN-NEBRASKA COMPANY

OMAHA, NEBRASKA

WOMEN'S BUREAU
AUG 3 1942
DEPARTMENT OF LABOR

August 1, 1942

Mrs. Tuveson
& list

Women's Bureau
United States Dept. of Labor
Washington, D. C.

Mesdames:

I am serving in the capacity of Women's Counselor for the Glenn L. Martin-Nebraska Company.

I shall appreciate your sending me any bulletins or other literature which you feel may be of value to me in this line of work.

Yours very truly

THE GLENN L. MARTIN-NEBRASKA COMPANY

Mary Ross

Mary Ross
Women's Counselor

MR/hh

WCD 8/3

August 5, 1942

Miss Katherine I. Aronson
Personnel Division
Owens-Illinois Glass Company
Toledo, Ohio.

My dear Miss Aronson:

We are sending you, in response to your request of July 31st, information we have issued on women in war industries.

If you have any questions, after reading this material, we shall be glad to have you write us further.

Sincerely yours,

Mary Anderson, Director

rfn

ec
enc. Sp. 1,2,3, etc. available, MTM Speech, Bul. 189-1,2,3,4, typ. oper.

OWENS-ILLINOIS GLASS COMPANY

"FIRST IN GLASS"

MANUFACTURER OF GLASS PRODUCTS

GENERAL OFFICES

TOLEDO

WOMEN'S BUREAU
AUG 3 1942
DEPARTMENT OF LABOR

July 31, 1942

Miss Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Mary:

In heading up a women's program for our company, we are most anxious to secure all available material pertaining to women in industry.

Please furnish us with publications and bulletins issued by your bureau, covering all subjects that you think might help in our efforts in starting this program properly.

Thanking you in advance for your usual fine cooperation,

Sincerely yours,

OWENS-ILLINOIS GLASS COMPANY

Katherine I. Aronson

Personnel Division

K.I.Aronson:M

VEND

Defense Training

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF PUBLIC INSTRUCTION
HARRISBURG

June 25, 1942

File

WOMEN'S BUREAU
JUN 20 1942
DEPARTMENT OF LABOR

Miss Mary V. Robinson, Director
Division of Public Information
Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Robinson:

Upon receipt of your letter of June 17, I checked with members of the staff to find out what courses were being offered at Bryn Mawr College.

None of these courses are being offered under the public schools, nor are they part of the defense training program for which Vocational Education National Defense Funds were used. There is a remote possibility that the work offered at Bryn Mawr might be under the Engineering Division of the Pennsylvania State College.

We have organized a large school here in Harrisburg, namely, the Pennsylvania State School of Aeronautics. This school is housed in the Farm Show Products Building. Several hundred women are in training in this school. These women are all selected through Civil Service. I am enclosing a statement regarding this school.

RSH Harris

A great many women are being trained for defense jobs in the Philadelphia public schools. You probably could secure more information about the work in Philadelphia by addressing Mr. William E. Brunton, Assistant Director for National Defense Training, Philadelphia Public Schools, Administration Building, Parkway at 21st Street, Philadelphia.

Sincerely yours

Paul L. Cressman

Paul L. Cressman
State Director, Vocational
Training for Defense Workers

C b
Encl.

June 16, 1942

Mr. George J. Toles
Coordinator for Industry
National Defense Training Program
Board of Education
Buffalo, New York

My dear Mr. Toles:

Your letter of June 5th together with the accompanying Shop Tool Identification Chart and instructional guidance was read with real interest by several members of our staff. It is gratifying, indeed, to know of the progress made by the women you have trained.

Sincerely,

Bertha M. Nienburg,
Assistant Director

LW

BOARD OF EDUCATION

BUFFALO

NEW YORK

June 5, 1942

MARTIN H. KUEHN
DIRECTOR
NATIONAL DEFENSE TRAINING

ROBERT T. BAPST
SUPERINTENDENT OF SCHOOLS

WOMEN'S BUREAU
JUN 8 - 1942
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
U. S. Department of Labor
Women's Bureau
Washington, D. C.

My dear Miss Anderson:

It occurred to the writer that you might be interested in the accompanying Shop Tool Identification Chart and instructional guidance.

We are happy to be able to inform you that our women trainees are making wonderful progress and are in great demand in War Industries. We have delivered classes intact to Aircraft and other Plants upon completion of courses both in Ordinance Inspection and Machine Shop Practice.

If you desire further information at any time please do not hesitate to call on us.

Sincerely yours,

George J. Toles

George J. Toles
Coordinator for Industry
NATIONAL DEFENSE TRAINING PROGRAM

GJT:msf

enc.

BOARD OF EDUCATION

BUFFALO, N.Y.

NATIONAL DEFENSE TRAINING PROGRAM

VOCATIONAL TRAINING OF WOMEN FOR WAR INDUSTRIES

One of the first problems encountered in attempting to prepare women to perform mechanical work in war industries is that many women lack completely any understanding of the names and functions of tools and equipment used in the shop. This makes the early stages of learning somewhat slower than is usually the case with men. More of the teacher's time is required to explain and describe tools, machine parts, trade terms, and to impart other information of this type. The woman trainee cannot proceed very far in the training course until she has learned enough of this type of information to enable her to understand explanations of shop processes and to follow directions in carrying out the work.

As any aid in teaching this informational content of the course, the use of the tool and machine parts identification charts is suggested. These charts can be used in a number of different ways. The following methods are suggested:

1. Use the charts as a method of introducing the students to the names of tools. Point out tools or machine parts by number, name each one, and briefly explain its function.

2. Use the charts as material from which class discussion on the names and functions of tools and machine parts can be developed.

3. Use the charts as a basis for explanation or of class discussion concerning the proper way to use the various tools and machine parts.

4. Make the charts a basis of explanation, discussion, or class questioning on proper care of the tools and machine parts.

5. Use the charts as a testing-teaching device to help students become acquainted with tools and machine parts. To do this pass out a list of names of all the tools or parts on the chart, or place the names on the blackboard. Then have students write the names on paper and

place in front of each the number from the chart which corresponds to the drawing having that name. When all members of the class have completed this, papers can be exchanged and corrected. Set a time limit for completing the test.

This procedure can be varied by dividing the class into two teams and determining which team can score the largest total of points.

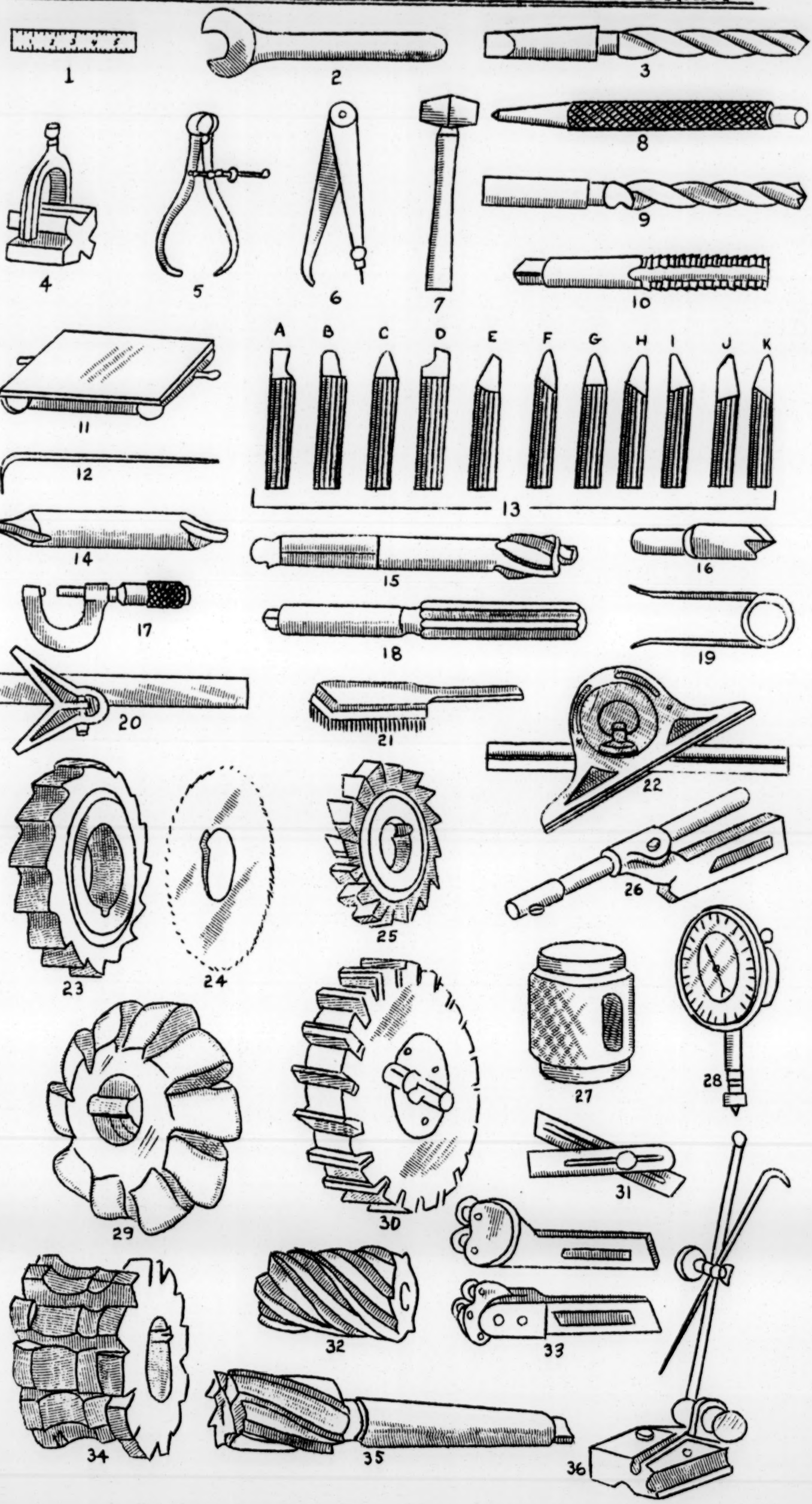
6. Emphasize safe practices by questioning class on the safe method of using certain tools or parts selected by number from the charts. Students can be asked to name the item, then tell what safety precautions should be observed in using it.

7. Name a shop process (such as boring on a lathe); have students name in order, by number and by name, the tools and machine parts used to complete this process; they might also be asked to outline the procedure for completing the process.

8. Use the charts in connection with blueprint reading. Students may be asked to interpret a print and then select by number and name the tools and machine parts which would be used to complete the processes indicated by the drawing.

NOTE: This list of methods for using the charts is suggestive only. Any resourceful teacher will find numerous other ways by which such charts can be used to introduce students to names, functions, use and care of tools, machine parts, processes and trade terms.

Machine Shop Tool Identification Chart



SUGGESTED COURSE OF STUDY

FOR

TRAINING OF WOMEN FOR WAR PRODUCTION

IN

LIGHT MACHINE OPERATION

GENERAL TOPICS

1. General Machine Shop Safety Rules and Precautions.
2. How to Clean, Oil and Care for Machines.
3. The Types of Metal Which the Machine Shop Worker Will Use.
4. How to Recognize the Working Condition of Cutting Tools.

LATHE TOPICS

1. Introduction to the Lathe.
2. Application and Adaptation of the Lathe in Industry.

LATHE PROCESSES

1. How to Cut off Metal with the Power Hack Saw.
2. How to Face Work Held in the Universal Chuck.
3. How to Center Drill Work Held in the Universal Chuck.
4. How to Straight Turn Between Centers.
5. How to Face Ends Between Centers.
6. How to Use the Micrometer.
7. How to Straight Turn to Micrometer Size.
8. How to True and Align Lathe Centers.
9. How to Turn Shoulders.
10. How to File and Polish on the Lathe.
11. How to Round and Chamfer Turned Edges.
12. How to Turn Grooves.

Lathe Processes

13. How to Turn Tapers.
14. How to Lay Out Center Holes.
15. How to Drill Center Holes on the Lathe Between Centers.
16. How to Knurl.
17. How to Turn Work Held in the Independent Jaw Chuck.
18. How to Drill Work Held in the Independent Jaw Chuck.
19. How to Bore and Counterbore in the Lathe Chuck.

DRILL PRESS TOPICS

1. Types of Drilling Machines.
2. Types of Tools Used in Drilling Machines.
3. Description of Jigs and Fixtures.
4. Holding Devices for Drilling Machine Tools.
5. Holding Devices for Work on Drilling Machines.
6. Measuring Tools.
7. Drill Press Descriptions.

DRILL PRESS PROCESSES

1. Drilling a Hole Using a Jig.
2. Drilling in Upright Drill and Strapping Work.
3. Drilling Holes Using Chuck and Vise.
4. Drilling Holes Using Upright Drill and "V" Blocks.
5. Drilling Holes Using Upright Drill and Angle Plates.
6. Drilling Holes Using Radial Drill and a Fixture.
7. Reaming Holes Using Upright Drill Press.
8. Tapping Holes With Work Held in Drill Press.
9. Counterboring Work Mounted in Drill Press.
10. Countersinking Parts While Held in Drill Press.

MILLING MACHINE TOPICS

1. Introduction to the Milling Machine.
2. General Description of the Various Types of Milling Attachments, Together with Their Adaptability, Uses and Limitations.
3. Types of Milling Cutters, the Range of Work for Which Cutters are Used and the Possible Developments to Meet Modern Methods and Materials.
4. Speeds of Milling Cutters.
5. Feeds of Milling Cutters.
6. Coolants, Cutting Oils and Cutting Compounds.
7. Care of Milling Cutters.
8. Description and Use of Tool-Holding Devices.
9. Description and Use of Work-Holding Devices.
10. Review of Measuring Tools.
11. Special Applications, Uses, Advantages and Limitations of Measuring Tools for Use with the Milling Machine.

MILLING MACHINE PROCESSES

1. Surface Milling Using Vise to Hold Work.
2. Surface Milling Using a Fixture Held in a Vise.
3. Side Milling Using a Vise to Hold Work.
4. Straddle Milling Using the Dividing Head to Hold Work and Direct or Rapid Indexing for Dividing the Work.
5. Face Milling Using a Face Milling Cutter and Bolting the Work to the Table.
6. End Milling the Edges of Slots or Work Using a Vertical Milling Machine.
7. Sawing and Metal Slitting Using a Slitting Saw and Bolting the Work to the Table.
8. Form Milling with the Work Held in a Small Fixture.

Gen'l. File

June 16, 1942

Mr. George J. Toles
Coordinator for Industry
National Defense Training Program
Board of Education
Buffalo, New York

My dear Mr. Toles:

Your letter of June 5th together with the accompanying Shop Tool Identification Chart and instructional guidance was read with real interest by several members of our staff. It is gratifying, indeed, to know of the progress made by the women you have trained.

Sincerely,

Bertha M. Nienburg,
Assistant Director

LW

holding material
Mil. Dr. file

May 8, 1942

Philadelphia Autograph Co.
P.O. Box 2412
Philadelphia, Pa. ATTENTION: S.M.

Gentlemen:

In reply to your letter of May 6th, regarding training of women for war industries, we have the following figures to give you; I believe they are the latest available, for the country as a whole:

Total women trained to March 1, 1942 - - 40,325

Total women in training courses March 1, 1942-13,172

Most of these were in "preemployment" courses.

This information comes from the U. S. Office of Education, which is the Government agency in charge of training courses for the war industries, and if you will get in touch with the Philadelphia vocational authorities, you can get pertinent data for your State. The U. S. Employment Service is in charge of recruiting and placing, and cooperates with the U. S. Office of Education officials in organizing the courses. You will want to inquire about the "V.E.N.D." courses as well as the "E.S.M.D.T." program.

The Women's Bureau has been making surveys of certain war industries to determine on what occupations women could be satisfactorily employed. These reports, and other pertinent material, are enclosed.

Sincerely yours,

Mary Anderson, Director

rfn
ec

enc. A.M.A. speech, toyp oper., voca. tr. needs, 4 surveys, March reprints
March 5 release

PHILADELPHIA AUTOGRAPH COMPANY

May 6, 1942

Womens Bureau

Have you recent material or figures of women in training for war industries? I need to prepare talk on use of women in connection with the war effort; from what categories are workers being drawn into what jobs are they going, where & how much training is being given. Could Dr. Meade whom we heard in Phila recently suggest recent findings in field of working characteristics or other traits of employed women and those unemployed who may now be offered chance to help the war effort.

Very truly yours
Phila. Autograph Co
per SM

Leaflets etc will be appreciated

POST OFFICE BOX 2412, PHILADELPHIA, PA.
DEALERS IN AUTOGRAPHS, LEGAL ITEMS and AMERICANA

May 6, 1942

Mr. George J. Toles
Coordinator for Industry
National Defense Training Program
Board of Education
Buffalo, N.Y.

My dear Mr. Toles:

We have your letter of May 1st, and three sets of the material listed are going forward under separate cover.

We are very interested to have further information on women in the night courses. I appreciate your suggestion very much to visit these sessions and I shall be glad to let you know when any of my engagements bring me to Buffalo.

Sincerely yours,

Mary Anderson, Director

rfn
cc

BOARD OF EDUCATION
BUFFALO
NEW YORK

MARTIN H. KUEHN
DIRECTOR
NATIONAL DEFENSE TRAINING

ROBERT T. BAPST
SUPERINTENDENT OF SCHOOLS

May 1, 1942

WOMEN'S BUREAU
MAY 4 - 1942
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
U. S. Department of Labor
Women's Bureau
Washington, D. C.

My dear Miss Anderson:

Grateful, indeed, for the most helpful material that accompanied your April 20th letter.

Two of our men working with Industries on course content for women read the data you furnished and believe that same would assist them greatly in their present work. May I ask for three additional sets outlined in the attached.

You will be pleased to learn that we are now training women in our all night session, 10:30 P.M. to 6:30 A.M., five nights a week, in three of our nine Schools. Necessary adjustments are being made rapidly to accommodate women in the remaining six units. In our supplementary courses, 4:00 P.M. to 6:00 P.M. - 5:00 P.M. to 7:00 P.M. and 7:30 P.M. to 10:00 P.M., we are now training about 500 women.

Because of the urgent needs of Industry we are featuring Machine Shop Practice as broken down in the enclosed Program for the present.

I can assure you these trained women will prove to be valuable assets in Defense Industries. During my long association with a large mail order house I directed the work of thousands of women in numerous operations. Therefore, I believe I am qualified to make this prediction.

BOARD OF EDUCATION
BUFFALO
NEW YORK

MARTIN H. KUEHN
DIRECTOR
NATIONAL DEFENSE TRAINING

ROBERT T. BAPST
SUPERINTENDENT OF SCHOOLS

May 1, 1942

Miss Mary Anderson: Page 2.

When the all night sessions for women only are in full swing in all Schools we would feel highly honored if you would favor us with a visit for the purpose of seeing this new department in action. To the writer it is most interesting. If you decide to make the trip and would care to have me shape your program for visiting the different Schools, kindly let me know.

Sincerely yours

George J. Toles
Coordinator for Industry
NATIONAL DEFENSE TRAINING PROGRAM

GJT:fm

Enc. (2)

NATIONAL DEFENSE TRAINING PROGRAM

IN

VOCATIONAL AND TECHNICAL HIGH SCHOOLS

★

Seventh Training Series
BEGINS JANUARY 5, 1942

★

BOARD OF EDUCATION
BUFFALO, NEW YORK

ROBERT T. BAPST - - - - - - Superintendent of Schools
MARTIN H. KUEHN - - - - - Director of National Defense Program
FRANCIS H. WING - - - Associate Superintendent, Vocational Education

BOYS HIGH SCHOOL

Afternoon 4-6 P. M.

None

Evening 7:30-10:00 P.M.

Blueprint Reading and Sketching
Electrical:
- Meter Reading & Test'g
- Motor & Generat'r Wk.
- Wiring

Machine Shop:
- Bench Work
- Drill Press Operation
- Lathe Operation
- Milling Machine Work
- Planer Operation
- Shaper Work
- Related Trade Math.

Sheetmetal:
- Assembling
- Construction
- Fabricating
- Layout
- Pattern Drafting

Night 10:30-6:30 A. M.

None

BURGARD VOCATIONAL HIGH SCHOOL

Afternoon 4-6 P. M.

Aircraft:
- Assembly
- Bench and Machine Work
- Drafting
- Fabrication
- Inspection
- Lofting
- Power Plant Instal'n
- Riveting
- Welding

Automobile:
- Carburetor Repair
- Chassis Repair
- Collis'n & Rad. Wk.
- Electrical Repair (Advanced)
- Engine Repair
- Engine Trouble Shooting and Dynamometer Testing
- Ignition
- Lubrication
- Mechanical Repair (Advanced)
- Starting and Lighting

Blueprint Reading and Sketching
Diesel Engine Work
Foremanship
Machine Shop:
- Bench Work
- Drill Press Operation
- Lathe Operation
- Milling Machine Work
- Planer Operation
- Shaper Work
- Shop Mathematics

Welding:
- Electrical
- Oxy-acetylene

Evening 7:30-10:00 P.M.

Aircraft:
- Assembly
- Bench and Machine Work
- Drafting
- Fabrication
- Inspection
- Lofting
- Power Plant Instal'n
- Riveting
- Tool & Fixture Layout
- Welding

Automobile:
- Carburetor Repair
- Chassis Repair
- Collis'n & Rad. Wk.
- Electrical Repair (Advanced)
- Engine Repair
- Engine Trouble Shooting and Dynamometer Testing
- Ignition
- Lubrication
- Mechanical Repair (Advanced)
- Starting and Lighting

Blueprint Reading and Sketching
Diesel Engine Work
Foremanship
Machine Shop:
- Bench Work
- Drill Press Operation
- Lathe Operation
- Milling Machine Work
- Planer Operation
- Shaper Work

Shop Mathematics
Strength of Materials Testing
Welding:
- Electrical
- Oxy-acetylene

Night 10:30-6:30 A. M.

Aircraft:
- Assembly
- Bench and Machine Work
- Cable Splicing
- Fabrication
- Power Plant Installation
- Riveting
- Welding

Automobile:
- Electrical Repair
- Mechanical Repair
- Collision and Radiator Work

Diesel Engine Work
Machine Shop:
- Bench Work
- Drill Press Operation
- Lathe Operation
- Milling Machine Work
- Planer Operation
- Shaper Work

Welding:
- Electrical
- Oxy-acetylene

Morning Session 1:30-3:30 A.M.
Aviation Mechanics
Foremanship
Aircraft Inspection
Shop Mathematics

McKINLEY VOCATIONAL HIGH SCHOOL

Afternoon 4-6 P. M.

Blue Print Reading
Formanship
Inspection
Machine Shop:
- Bench Work
- Drill Press Operation
- Lathe Operation
- Mathematics
- Milling Machine Work
- Planer Operation

Evening 7:30-10:00 P.M.

Blue Print Reading and Sketching
Formanship
Machine Shop:
- Bench Work
- Drill Press Operation
- Lathe Operation
- Mathematics
- Milling Mach. Work
- Planer Operation

Patternmaking, Wood
Sheetmetal Work
- Aircraft
- Assembling
- Construction
- Fabricating
- Layout
- Mathematics
- Pattern Drafting

Shop Math. & Theory

Night 10:30-6:30 A. M.

Machine Shop:
- Bench Work
- Drill Press Operation
- Lathe Operation
- Mathematics
- Milling Machine Work
- Planer Operation

Sheetmetal Work,
- Aircraft
- Assembling
- Construction
- Fabricating
- Layout
- Mathematics
- Pattern Drafting

Morning Sessions 1:30-3:30 A.M.
Blue Print Reading
Sheet Metal Work
Machine Shop Practice

BOARD OF EDUCATION

SCHOOLS AND COURSES

EMERSON VOCATIONAL HIGH SCHOOL

Afternoon 4-6 P. M.

Blueprint Reading
Shop Mathematics
Machine Shop:
- Bench Work
- Drill Press Operation
- Lathe Operation
- Milling Machine Work
- Planer Operation
- Shaper Work

Ship Carpentry
Ship Joinery

Evening 7:30-10:00 P.M.

Blueprint Reading and Sketching
Machine Shop:
- Bench Work
- Drill Press Operation
- Lathe Operation
- Milling Machine Work
- Planer Operation
- Shaper Work

Shop Mathematics
Ship Carpentry
Ship Joinery

Night 10:30-6:30 A. M.

Machine Shop:
- Bench Work
- Drill Press Operation
- Lathe Operation
- Milling Machine Work
- Planer Operation
- Shaper Work

SENECA VOCATIONAL HIGH SCHOOL

Afternoon 4-6 P. M.

Blue Print Reading
Electrical:
- Armature Winding
- A. C. and D. C. Machinery
- Maintenance
- Motor Controls and Protective Devices
- Wiring

Machine Shop:
- Bench Work
- Drill Press Operat'n
- Lathe Operation
- Milling Machine Operation
- Planer Operation
- Shaper Work

Radio Service
Steam Engineering
Telephony
Tool and Die Making
Welding:
- Electrical
- Oxy-acetylene

Evening 7:30-10:00 P.M.

Blue Print Reading
Diesel Engine Work
Drafting and Design:
- Tool and Die Design

Electrical:
- Armature Winding
- A.C. & D.C. Machinery
- Maintenance
- Motor Controls and Protective Devices
- Transformer Winding
- Wiring

Industrial Chemistry
Machine Shop:
- Bench Work
- Drill Press Operation
- Lathe Operation
- Milling Machine Oper'n
- Planer Operation
- Shaper Work
- Mathematics

Radio Service
Radio Equipment Assembly
Refrigeration
Sheetmetal:
- Assembling
- Construction
- Fabricating
- Layout
- Pattern Drafting

Steam Engineering
Telephony
Tool and Die Making
Welding:
- Electrical
- Oxy-acetylene

Night 10:30-6:30 A. M.

Electrical Wiring
Machine Shop:
- Bench Work
- Drill Press Operat'n
- Lathe Operation
- Milling Machine Operation
- Planer Operation
- Shaper Work

Radio Service
Welding:
- Electrical
- Oxy-acetylene

TECHNICAL HIGH SCHOOL

Afternoon 4-6 P. M.

Blue Print Reading & Sketching
Electrical Maintenance
Foundry Practice
Industrial Chemistry
Lens Grinding
Machine Shop:
- Bench Work
- Drill Press Operat'n
- Lathe Operation
- Milling Machine Work
- Planer Operation
- Shaper Work

Precision Measure. (Inspection Practice.)
Tool and Die Making
Welding:
- Oxy-acetylene

Evening 7:30-10:00 P.M.

Applied Optics
Applied Trigonometry for Layout Work
Blue Print Reading & Sketching
Drafting and Design:
- Machine Design
- Machine Drafting & Tracing
- Structural Design
- Tool & Die Design

Elect'al Mainten'ce, D.C.
Elect'al Mainten'ce, A.C.
Elect'al Protective Devices
Electronic Equipment Maintenance
Foundry Practice
Industrial Chemistry
Lens Grinding
Machine Shop:
- Bench Work
- Drill Press Operation
- Lathe Operation
- Milling Machine Work
- Planer Operation
- Shaper Work

Metal Processing & Heat Treatment of Metals
Precision Measurements (Inspection Practice)
Production Planning
Materials Testing
Related Instruction for Apprentices
Ship Carpentry
Tool and Die Making
Welding:
- Oxy-acetylene

Night 10:30-6:30 A. M.

Blacksmithing
Electrical Maintenance (D. C.)
Electrical Maintenance (A. C.)
Foundry Practice
Lens Grinding
Machine Drafting & Tracing
Machine Shop:
- Bench Work
- Drill Press Operat'n
- Lathe Operation
- Milling Machine Work
- Planer Operation
- Shaper Work

Precision Measure, Inspection Practice
Welding:
- Oxy-acetylene

BUFFALO. NEW YORK

COURSES

Aircraft:
*Assembly
*Bench and Machine Work
Drafting
*Fabrication
Lofting
Mathematics
*Power Plant Installation
*Riveting
Tool and Fixture Design
*Welding
Applied Optics
Applied Trigonometry for Layout Work
Automobile:
Carburetor Repair
Chassis Repair
Collision and Radiator Work
Electrical Repair (Advanced)
Engine Repair
Engine Trouble Shooting and Dynamometer Testing
Ignition
Lubrication
Mechanical Repair (Advanced)
Starting and Lighting
Blacksmithing
Blueprint Reading and Sketching
Drafting and Design:
Machine Design
Machine Drafting and Tracing
Structural Design
Tool and Die Design
Diesel Engine Work
Electrical:
A.C. and D.C. Machinery
Armature Winding
Maintenance
Meter Reading and Testing
Motor and Generator Work
Motor Controls and Protective Devices
Wiring
Electronic Equipment Maintenance
*Foundry Practice
Foremanship
Industrial Chemistry
Inspection
*Lens Grinding
Machine Shop:
*Bench Work
Drill Press Operation
Lathe Operation
Mathematics
Milling Machine Work
Planer Operation
Shaper Work
Metal Processing and Heat Treatment of Metals
Pattern Making (Wood)
Precision Measurements
Production Planning
Radio Equipment Assembly
Radio Service
Refrigeration
Related Instruction for Apprentices
Sheet Metal:
Assembling
Construction
Fabricating
Layout
Mathematics
Pattern Drafting
Ship Carpentry
Ship Joinery
Shop Mathematics
Steam Engineering
Strength of Materials Testing
Telephony
Tool and Die Making
Welding:
Electrical
Oxy-Acetylene

LOCATION OF SCHOOLS

Burgard Vocational High School	400 Kensington Ave.
Emerson Vocational High School	1405 Sycamore St.
McKinley Vocational High School	1500 Elmwood Ave.
Seneca Vocational High School	666 E. Delavan Ave.
Technical High School	342 Clinton St.
Boy's High School	280 Oak St.
Burgard Annex	94 Guilford St.
Seneca Annex (School No. 17)	1805 Main St.

Girl's High

No applications for admission to any course will be accepted at the Burgard or Seneca Annexes. Applicants must apply at main buildings.

GENERAL INFORMATION

1. REGISTRATION

Beginning Jan. 5, 1942, and continuing on each day thereafter that the schools are open, applications for enrollment will be received at the schools listed during the following hours:

For the Afternoon Session. . 4:00 to 6:00 P.M. and 5:00 to 7:00 P.M.
For the Evening Session ..... 7:30 P. M. to 10:00 P. M.
For the Night Session .....10:30 P. M. to 6:30 A. M.

2. SESSIONS

Afternoon and Night Sessions—
Every day except Saturday and Sunday.

Evening Sessions—
Shift No. 1—Monday and Wednesday.
Shift No. 2—Tuesday and Thursday.

Night Sessions are ten weeks in length.
Afternoon and Evening Sessions Jan. 5, 1942 to June 20, 1942.

3. FEES

None. These courses are free.

4. ADMISSION REQUIREMENTS

Afternoon and Evening Sessions—open to men employed in occupations essential to National Defense, or in allied occupations for the purpose of extending their skills and knowledge in such occupations. Courses starred on next page are also open to unemployed or inexperienced men.

Night Sessions—open to unemployed men selected from the Works Progress Administration or the New York State Employment Service lists.

All applicants must be 17 years of age and employable.

All applicants must be citizens or have taken out their first naturalization papers.

Not limited to residents of Buffalo.

April 2, 1942.

Mr. W. E. Hoadley, Jr.
Assistant Supervisor, ESMDT
2209 Telegraph Avenue
Berkeley, California

My dear Mr. Hoadley:

With further reference to your letter of March 21st, I wanted to make one or two comments on the ESMDT courses relating to industrial management, in which you say your own interest centers, and for which you are serving as supervisor.

Our reply of March 28th contained information related soley to women in shipbuilding occupations, about which you asked specifically.

Our query concerns the training you might be offering to women to fit them for supervisory positions in relation to the factory work itself; in many cases women are on the office part of the factory work, and could be upgraded to supervisors. In many factories we find women a re not yet employed in the production work itself but are listed as "non-productive workers," and I feel some inquiry might show women could well be used as supervisors here. The canneries in California will probably need some replacements in their supervisory positions, and up to now there have been very few women so employed. I also wonder if some opportunities might not be developed in plants such as Marchand Calculating Machine Company, Oaklnad, which now is manufacturing fuses for the government.

Sincerely yours,

RFN
erb

Mary Anderson, Director

U. S. DEPARTMENT OF LABOR

WOMEN'S BUREAU

To—		From—	Re Attached Please—
	Anderson.		Approve
	Nienburg.	✓	Comment
	Larrabee.		Note
	Benham.		Note and return
	Best.		Reply
	Erickson.		Draft of reply
	Files.		Signature
	Hyde.		Would like to discuss
	Manning.		File
	Mettert.		
	Pidgeon.		Date
	Robinson.		Note: Mrs. Nyman
	Smith, F.		
	Spring.		
	Steel.		
	Stitt.		

WPD 14—3769

This is very interesting. Original

as this subject is in Training

course for Industrial Management

I think we might call Miss [illegible] to [illegible]

March 28, 1942

Mr. W. E. Hoadley, Jr.,
Assistant Supervisor, ESMDT
2209 Telegraph Avenue
Berkeley, California

My dear Mr. Hoadley:

I have your letter of March 21st, and enclosed you will find our surveys of certain war industries made to determine on what occupations women could be satisfactorily employed. I have just returned from a trip to the Northwest and in Portland I visited one of the electrical shops which was furnishing switch boxes and control boxes for the ships up and down the Coast; these were entirely made by women.

The Women's Bureau has not made a special survey of occupational possibilities for women in shipbuilding, though we have been approached by the Navy on the subject, and our agents on the West Coast have had one or two interviews and in one area our agent made a cursory inspection.

I am very interested to know you are inquiring into the possibility of placing women in some of the divisions of the shipbuilding industry. When you speak of shipbuilding in the San Francisco area and the various divisions of this industry, I take it you are including manufacture of parts and any sub-assembly work needed for ships, and not just the hull work and shipfitting. If a distinction is made here, it explains why women are probably to be used in Navy yards (where everything is done) but not in the private shipbuilding yards (where some of the work is let out to subcontractors).

There seems to be a diversity of opinion as to employing women. At Portland, Maine, women are receiving training for welders and solderers and will be used definitely in the shipyards (see the enclosed clipping from a Portland paper). The Mare Island Navy Yard, according to the clipping enclosed, is seeking women as mechanics' helpers. At the Puget Sound Navy Yard where our agent made a quick tour of the shops, there was the general feeling that women could be brought in. I am enclosing her statement, together with opinions of others she interviewed; you will note women were used in the last war on some of the jobs, but for one type of work were not successful.

I believe Mrs. Bernice May of your ESDMT staff saw our representative, Miss Ethel Erickson, several weeks ago, at the suggestion of Professor M. P. O'Brien, and Mrs. May can give you the details about their conference. Miss Erickson's opinion, derived from the few interviews she has had on this subject, can be summarized as follows:

> In the design departments and drawing rooms, women might be assistants and tracers, but the proportion would be small. In lofting, some women could be used. She did not think women could be used in fabricating and machine shops, in the assembly of ships in the yards, or in outfitting the ship - all these were too heavy, too unsuitable. She thought women might be used to some little extent in the warehouses and stores in the largest yards where some tools might be light enough for them to handle.

I, too, do not think the numbers of women will be great, even if needed, as the work is too heavy or requires years of apprenticeship training. Most men in shipbuilding are older and are beyond draft age, so there may not be much need to consider women. Nevertheless, if it is going to be necessary to use women on some of the jobs, they should be getting training now, and I should like to see the proper ESDMT courses at Berkeley open to them.

Sincerely yours,

Mary Anderson, Director.

Encl.

Women Take Tests for Welders
(Times, New York City)

Portland, Me., March 13 (AP)--Preparing to fill places of men lost to military services by heavy defense industries in Maine, thirty-five Portland women took physical examinations today for places in the Todd-Bath Iron Shipbuilding Corporation's welding and burning school.

****

Women Will be Employed in Navy Yard
(Bee, Sacramento, California)

Mare Island Navy Yard (Solano Co.), March 7.-- Martin Aden, recorder of the Mare Island Labor Board, has sent out an appeal to women in Vallejo and other cities of the north bay area to volunteer for jobs at Mare Island.

In a letter sent with every check mailed to workers by the navy yard this week, Aden called for women to offer their services for positions as mechanic-learners at the navy yard.

Women Must Aid More

He emphasized that the efforts of women for national defense have been as important as national defense work by men, but women now must aid even more.

Aden said women between the ages of 20 and 45 will be eligible to take the examinations for the position of mechanic-learners, to start at a salary of 50 cents an hour, with time and a half for overtime.

The women will be employed to help navy yard workmen in the performance of their duties. Upon the successful completion of a six months training course, the women will be eligible for jobs at 75 cents per hour.

Urged to Apply

The letter urged women to apply immediately for application forms and additional information at the labor board office. They will be notified of the date for the examination.

The navy yard also announced that John Murphy, former master hull superintendent at Mare Island, has been named instructor of classes at Napa to train women for jobs in defense plants. Many of the women who complete the course are expected to be called for work at Mare Island.

****

Women's Bureau
U. S. Department of Labor
Washington

Agent's Report, August 1941.

Puget Sound

This Navy Yard does mainly repair work on Navy ships, there is some new ship construction. The only phase of production in which women are now being used is in the sailloft as power machine operators making tarpaulins, clothing bags, slip covers for furniture, mattress covers, etc., and in some of the toolrooms as toolroom attendants.

The feeling prevailed that consideration should be given to the added use of women in production work (Navy Yard still able to get male workers needed).

In the "smithshop" most of the work seemed too hot and laborious for women; likewise in the pipe and copper shop; and in chipping and caulking work seen at time of visit was too heavy for women but possibly there would be lighter work of this nature that women could do.

As much subassembly welding as possible was done off the ships and a new building had just been constructed where the entire bulkheads of some ships could be welded before installing them in the hulls. Women could do some of the lighter welding work. (Welders trained in 250-300 hours.)

In the machine shop, there are the usual lathes and machines and dull presses - but so much of the work was on a job-shop basis that only the more experienced mechanics could be used. During the last war, women had been used on some of the turret lathes and drill presses, and if the same quantity production is reached in this war they could be used for these operations again.

In the electrical shop are many large turbines and motors - requiring the use of skilled electricians. Very large switch boxes and control boxes from some of the battleships were being repaired; there is the possibility that women could be trained for some of this work and for incidental bench work.

In the mold loft - only the more highly trained type of woman could do any of this work.

Work in the shipfitting shop seemed very heavy and dangerous. In the boat shop (wooden landing boats), all the workmen are skilled joiners and cabinet makers. There was a shop for painting and plating and some of the work there could have been done by women.

All those interviewed seemed to feel that it was not advisable to use women for in-board work; during the last war women were used as helpers on some of the ships but they did not prove successful.

- - - -

The Training Within Industry Director at Seattle felt women could be used for painting, subassembly welding, and some lofting work in shipbuilding.

- - - - -

A personnel manager of a shipbuilding corporation in Seattle expressed the opinion there would be fewer opportunities for women in repair and conversion work than in new shipbuilding construction. The chief field for women in repair and conversion would be brush painting and spray painting. He further stated:

> "Possibly 15 percent of the work in new ship construction could be done by women in an extreme emergency, and the largest proportion of this work would be as shipfitters' helpers, subassembly welders and painters; could do 12-15% of the work in the hull division working as shipfitters' helpers, subassembly welders and subassembly workers in the sheet metal shop, and welders' helpers. If trained, women could perhaps do as much as one-third of the welding on subassemblies before installing them in the ships. In-board welding would be more difficult because of the climbing around that is required and the heavier nature of the work.
>
> "Women could heat the rivets and they could pass the rivets to the riveters in yards where the pneumatic rivet passing system was not used extensively. The actual riveting would be too heavy work. Women could do much of the brush painting and spray painting. Acetylene burners were used for cutting the sheets of raw metal stock into proper size and women could perhaps do some of the cutting of lighter metals.
>
> "Women with a considerable background of mathematics and some knowledge of mechanical drawing could assist with some of the template layout work. The shipfitters then mark the sheets of metal from the templates so that the burners know how to cut the metal, and women could act as helpers to thse shipfitters.
>
> "In the carpenter shop most of the work was too heavy and rough for women. Riggers' work involves handling heavy materials also. In the machine shop the work was very heavy and it was so diversified that only the most experienced machinists could be used. Cutting of metal and forming of metal on rollers was also very heavy work. Boilermaking requires years of experience."

Agent's report, August 1941. Puget Sound.

Gen. H. G. Winsor, Training Within Industry director, Seattle,
felt women could be used for painting, subassembly welding, and some lofting work in shipbuilding.

Henry Nollan, personnel manager, Associated Shipbuilders Corporation
Similar to Gen. Winsor

Commander F. D. Hanock, headquarters, 13th Naval District Seattle
He had no idea how or where women could be used, but wanted the Women's Bureau to explore the possibilities for women in shipyard work

Clare Bowman, personnel manager, Seattle-Tacoma Shipbuilding Corp.
There would be fewer opportunities for women in repair and conversion work than in new shipbuilding construction. The chief field for women in repair and conversion would be brush painting and spray painting.

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no names to be copied - just as marked.

Agent's report, August 1941. Puget Sound.

Lt-Cr. O.D. Adams, Capt. P.H. Dunbar - Puget Sound Navy Yard, Bremerton, Wash.

~~The Puget Sound~~ This Navy Yard does mainly repair work on Navy ships; there is some new ship construction. The only phase of production in which women are now being used is in the sailloft as power machine operators making tarpaulins, clothing bags, slip covers for furniture, mattress covers, etc. and in some of the toolrooms as toolroom attendants.

The feeling prevailed that consideration should be given to the added use of women in production work (Navy Yard still able to get male workers needed)

In the "smithshop" most of the work seemed too hot and laborious for women; likewise in the pipe and copper shop; and in chipping and caulking work seen at time of visit was too heavy for women but possibly there would be lighter work of this nature that women could do.

As much subassembly welding as possible was done off the ships and a new bilding had just been constructed where the entire bulkheads of some ships could be welded before installing them in the hulls. Women could do some of the lighter welding work. (Welders trained in 250-300 hours.)

In the machine shop, the usual lathes and machines and drill presses - so much of the work was on a job-shop basis that only the more experienced mechanics could be used. During the last war, women had been used on some of the turret lathes and drill presses, and if the same quantity production is reached in this war they could be used for these operations again.

In the electrical shop, many large turbines and motors - requiring the use of skilled electricians. Very large switch boxes and control boxes from some of the battleships were being repaired; there is the possibility that women could be trained for some of this work and for incidental bench work.

In the mold loft - only the more highly trained type of woman could do any of this work.

Work in the shipfitting shop seemed very heavy and dangerous. In the boat shop (wooden landing boats), all the workmen skilled joiners and cabinet makers. There was a shop for painting and plating and some of the work there could have been done by women.

All those interviewed seemed to feel that it was not advisable to use women for in-board work; during the last war women were used as helpers on some of the ships but they did not prove successful.

UNIVERSITY OF CALIFORNIA

Hyperander

(Passing to Miss Anderson's attention)

March 21, 1942

ESMDT 1341

Labor
on

ity of California Defense Training office is cur-
lanning an extensive series of courses for women.
s in the field of industrial management in which I
ervisor. I am desirous of obtaining any publica-
u which will provide information on the anticipated demand for women in war industries. The San Francisco Bay Area, in which most of our courses are held, is predominantly a shipbuilding area and so naturally I am interested in any surveys which have been made with respect to the possibility of placing women in any of the various divisions of this industry.

I have had occasion to consult some of your press releases and survey summaries covering the aircraft, small arms ammunition, and artillery ammunition industries. May I have copies of these releases for my files?

Thank you for whatever help you may be able to give.

Sincerely yours,

W. E. Hoadley Jr.

W. E. HOADLEY, Jr.
Assistant Supervisor, ESMDT

WEH:GF

E E saw Mrs. Berwick May (referred by Prof MPG Briem)

DEFENSE TRAINING
BERKELEY, CALIFORNIA
2209 TELEGRAPH AVENUE
TELEPHONE: THORNWALL 2110
LOS ANGELES, CALIFORNIA
ROOM 2, LIBRARY BUILDING
UNIVERSITY OF CALIFORNIA
TELEPHONE: ARIZONA 30979
SAN DIEGO, CALIFORNIA
404 SCRIPPS BUILDING
TELEPHONE: FRANKLIN 3650

UNIVERSITY OF CALIFORNIA

March 21, 1942

ESMDT 1341

Mrs. Mary Anderson
Women's Bureau
U.S. Department of Labor
14th and Constitution
Washington D.C.

Dear Mrs. Anderson:

The University of California Defense Training office is currently engaged in planning an extensive series of courses for women. My own interest lies in the field of industrial management in which I am serving as a supervisor. I am desirous of obtaining any publications of your Bureau which will provide information on the anticipated demand for women in war industries. The San Francisco Bay Area, in which most of our courses are held, is predominantly a shipbuilding area and so naturally I am interested in any surveys which have been made with respect to the possibility of placing women in any of the various divisions of this industry.

I have had occasion to consult some of your press releases and survey summaries covering the aircraft, small arms ammunition, and artillery ammunition industries. May I have copies of these releases for my files?

Thank you for whatever help you may be able to give.

Sincerely yours,

W. E. Hoadley Jr.

W. E. HOADLEY, Jr.
Assistant Supervisor, ESMDT

WEH:GF

E E saw Mrs. Bernstein May
(referred by [illegible]
Prof MPC Brierley)

M. J. DELEHANTY, DIRECTOR

PHONE: STUYVESANT 9-6900

Training Agent

THE DELEHANTY INSTITUTE

9-11 EAST 16TH STREET NEW YORK, N.Y.

EXECUTIVE OFFICES AND
CIVIL SERVICE DIVISION
115 EAST 15TH STREET

Vocational *Division*

BUSINESS AND
SECRETARIAL SCHOOL
120 WEST 42ND STREET

Women's Defense Division
126 East 13th Street

March 25, 1942

Miss Janet Hooks,
Women's Bureau,
Dept. of Labor,
Washington, D. C.

Dear Miss Hooks:

I am more than grateful to you for sending on the various booklets and literature pertaining to women in industry. They are exceedingly interesting and will be very helpful.

Would it be possible for you to send me two more copies, each as I can put them to good use. I am listing below those sent me, as you may not know the exact material I wish -

Sent 3/27/42

Effective Industrial Use of Women in the Defense Program
Safety Clothing for Women In Industry
Lifting Heavy Weights in Defense Industries
The Employment of and Demand for Women Workers in the Manufacture of Instruments - Nov. 1941
Employment of Women in the Manufacture of Artillery Ammunition
Women's Factory Employment in an Expanding Aircraft Production Program

Employment of Women in the Manufacture of Small Arms Ammunition

I am enclosing herewith curriculum of the courses The Delehanty Institute is giving for women. This is a hurried, temporary form, but a better set-up is at present on the press, which I will forward to you at a later date. The attached however, will give you the information I speak of. I am not proud of our pink folder. This, too, is being revised and as yet is not off the press.

Yours very truly,
C. E. Rogers
Associate Director,
The Delehanty Institute.

CR/fd

THE DELEHANTY INSTITUTE

AIRCRAFT COURSE

WOMEN

DAY COURSE -- Includes theory and practical instruction in all subjects outlined herein.

Classes meet five days a week, Monday through Friday
Length of Course -- 150 hours
Hours -- 9:30 a.m. to 4:30 p.m.

NIGHT COURSE -- Includes theory and practical instruction in all subjects outlined herein.

Classes meet five nights a week -- three nights minimum. Students may choose any three nights, but must start on Monday evening.

Length of Course -- 150 hours
Hours -- 7:00 p.m. to 10:00 p.m.

GENERAL INFORMATION

NOTE:- Terms may be arranged. A discount of 5% will be allowed if tuition is paid within 10 days.

If a student withdraws before completion of the course, his obligation to the Institute ceases upon notice of his withdrawal.

Students will be required to purchase coveralls and tools. These can be purchased from the School at cost.

STARTING TIME -- Regular starting periods are scheduled throughout the year. Students must start at a specified time.

* * * * * * * * * * * *

VOCATIONAL DIVISION

9 - 11 EAST 16th STREET

NEW YORK CITY

STuyvesant 9-6900

THE DELEHANTY INSTITUTE

VOCATIONAL DIVISION
9-11 EAST 16th STREET, NEW YORK CITY
STuyvesant 9-6900

The aircraft course covers training in the following:

It should be noted that all theory is given on a practical basis and applied to working conditions at the time the theory is given. Also, blueprint reading and applied mathematics are not given as separate subjects but taught throughout the course as situations warrant.

A review period is provided in the course to insure students of receiving information lost due to absence or failure to retain information taught or for advanced work in special branches of the course.

RIVETING

THEORY
- airplane parts
- symbols
- types of rivets
- handling materials
- measuring instruments

SHOP METHODS
- safety
- time study
- tool crib
- care of tools
- planning

DRILLING
- layout
- loft
- template
- free
- accessories

PNEUMATIC TOOLS
- vibrator
- one shot
- compression squeezer
- corner gun
- government specifications

ASSEMBLY
- fasteners
- temporary
- permanent
- rivet removal
- bench

FLAT METAL

FORMING
- shearing
- stretching
- shrinking
- bending

SUB-ASSEMBLY

BENCH WORK
- filing
- drilling
- reaming
- tapping

POWER RIVETING
- spar
- bulkheads
- ribs
- stringers

JIG ASSEMBLY
- wing
- fuselage
- tail
- use of wrenches

FINAL ASSEMBLY

ASSEMBLY
- fuselage structure
- panel structure
- tail structure
- fairings

SKINNING
- layout and fitting
- fuselage
- panel
- tail
- float

INSTALLATION
- instruments

INSPECTION ADJUSTMENTS
- rivets
- lines of control
- component parts assembly
- structural assembly
- final check

THE DELEHANTY INSTITUTE

VOCATIONAL DIVISION
9-11 EAST 16th STREET, NEW YORK CITY
STuyvesant 9-6900

The Bench Assembly and Inspection Course covers training in the following:

It should be noted that all theory is given on a practical basis and applied to working conditions at the time the theory is given. Also, blueprint reading and applied mathematics are not given as separate subjects but taught throughout the course as situations warrant.

Whatever blueprint reading is given is of a fundamental nature and should not be construed as being a complete course in the reading of blueprints.

I. FILING

Identification of files
Draw filing
Filing to inside and outside radius

II. BURRING

Burring machined castings
Cleaning up rough castings
Burring teeth on gears

III. TAPPING

Hand tapping
Use of "go" and no "go" gages

IV. REAMING

Hand reaming
a. Straight reaming
b. Taper Reaming
Machine reaming
Use of plug gages

V. MICROMETER

Care and use of micrometer
Use of ten-thousandths micrometer

VI. VERNIER CALIPERS

Reading, care and use
Adaptations for use as height gage, machine set up, etc.

VII. DEPTH GAGE

Fractional
Micrometer
Use and Adaptations

VIII. SURFACE GAGE

To be used in connection with milling machine set up and shall include the vernier gage.

IX. RADIUS GAGE

To be used in filing and fitting.

X. USE OF SNAP GAGE AND RING GAGE

XI. SHOP MATHEMATICS as applied to bench assembly practice.

XII. FITTING BEARINGS, SHAFTS and other parts in conformity with good assembly practice.

XIII. GENERAL LAYOUT PRACTICE, using combination square, scale, height gage, etc.

XIV. DRILL PRESS OPERATION

XV. DRILL SHARPENING

XVI. APPROVED PRACTICE IN USING STAINLESS STEEL AND MONEL METALS

XVII. CASTINGS, their development and use (particularly aluminum).

XVIII. SOLDERING

XIX. ASSEMBLY

XX. BENCH LATHE, - use of lathe, including turning, centering, facing, cut off and use of chuck.

** ** **

NOTE: Due to plant requirements and demands, this curriculum is subject to change without notice.

THE DELEHANTY INSTITUTE

INDUSTRIAL DRAFTING

MEN AND WOMEN

Classes are divided into two sections: 1. Elementary, 2. Advanced.

250 hours of instruction for each section, total 500 hours.

Cost per section: Elementary: $125. Advanced: $125.

ELEMENTARY SECTION - contains all fundamentals involved in all industrial drawing requirements. This includes theory and working drawings, projections, sections, lettering, blueprints, and other types of reproduction tracing and all medium and schematic sketches, etc.

ADVANCED SECTION - contains all the fundamentals of the elementary course applied to actual work conditions in all leading divisions of industry, such as, Aviation, shipbuilding, radio, sheet metal, machine shop trades, etc.

DAY SESSION: 8:30 to 5:00 - 8 hours, five days Monday to Friday.

EVENING SESSION: 5 nights, 6:30 to 10:30 - 4 hours; may choose any three, four, or five nights.

NOTE:-

1. Terms may be arranged. A discount of 5% will be allowed if tuition is paid within 10 days.

2. If a student withdraws before completion of the course, his obligation to the Institute ceases upon notice of his withdrawal.

3. The cost of instruments is approximately $15; the student pays this cost.

VOCATIONAL DIVISION

9 - 11 EAST 16th STREET

NEW YORK CITY

STuyvesant 9-6900

Jobs for Women

IN

DEFENSE PLANTS

Learn to be

BENCH

ASSEMBLERS

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Good Pay!

SHORT COURSES — DAY AND EVENING CLASSES

The DELEHANTY I

— WOMEN'S DIV

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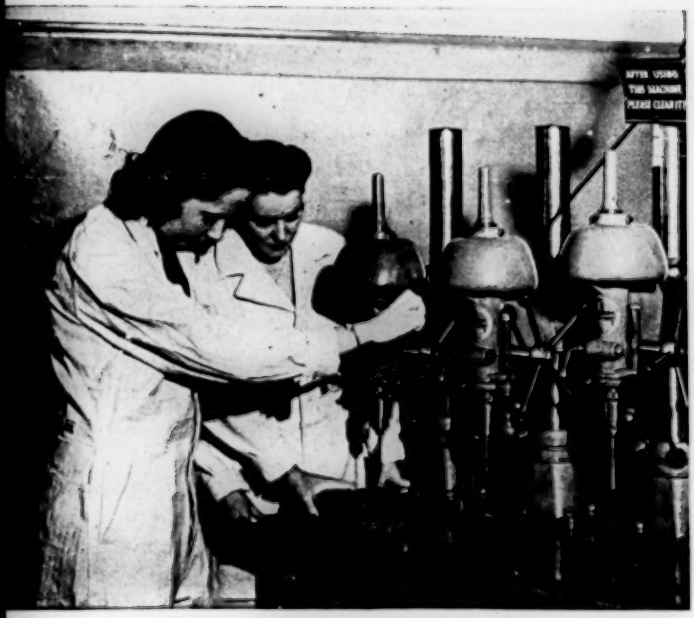
Women Wanted in Defe

BENCH ASSEMBLERS and



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Light, Easy Work — Good Pay

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Married and Single Women Are Eligible
And Can Qualify In ~~90~~ Hours.

Salaries $20.00 to $

Thousands of women are needed assembling and inspecting small opportunity for many American Uncle Sam to attain the greatest war — and at the same time PAY! Sales girls, waitresses, ele tory girls, clerks, typists, maids delay. Housewives seeking means living costs will also be interested

COMPLETE DE WILL HAVE YOU

It requires only 90 hours of i experts to qualify for work! Co you take them with you for use

SHORT COU

Day and Evening

MODERA RATES

Easy Payment

THE DELEHANTY INSTI

— WOMEN'S DIVISION —

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nse Work!

INSPECTORS

$31.20 a Week — 50c to 60c Hour and Overtime

ded in Defense Plants for light, pleasant work hall machined parts. This presents an unusual an young women to play a real part in helping ly increased production necessary to win the e EARN BETTER THAN AVERAGE WEEKLY elevator operators, beauty shop workers, fac- ds and houseworkers should investigate without ns of increasing the family income to meet rising sted in qualifying for these good-paying jobs!

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individual instruction by our factory-trained Complete kit of tools furnished for training and se on the job. You learn the care and handling of tools and precision instruments. Shop operations include Filing, Reaming, Burring, Tapping and General Layout and Inspection practice.

URSES
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sant 9-6900
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BIG FIELD IS SEEN FOR WOMEN IN WAR

Federal Bureau Head Says They Are Especially Fitted for Precision Work

Possibilities for a wide new field for women workers in factories making instruments for aircraft, for military medical units and for fire control—aiming and firing of guns, torpedoes and bombs—were seen yesterday in a study of defense factories by Mary Anderson, director of the women's bureau of the United States Department of Labor.

Pointing out that the masculine theory that "women have no mechanical ability, interest, or aptitude," already had been "exploded in the last war," Miss Anderson said women could do at least 75 per cent of the assembly work in making aircraft instruments.

"Women seem especially adaptable to this field," the report pointed out. "Instruments are relatively small in size, light in weight and composed of many intricate parts and assemblies. Many of the processes are of a painstaking nature for which women have the patience and finger dexterity.

THE DELEHANTY INSTITUTE
126 EAST 13th STREET, NEW YORK, N. Y.

GENTLEMEN:

Please send me complete information about your Special Courses for Women in BENCH ASSEMBLY and INSPECTION.

Please indicate whether

☐ DAY ☐ EVENING

NAME: .....
(Please Print)

STREET: .....

CITY: .....

(No Obligation Connected With Use Of This Card)

War Creates—

NEW OPPORTUNITIES FOR WOMEN!

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There is a definite place for skilled women workers in Uncle Sam's "all-out" war effort. In certain important production operations the sensitive, dexterous hands of women are far superior to those of men. If you are an American citizen — married or single — and between 18 and 35 years of age, you owe it to yourself and your country to investigate! The work is light, clean and pleasant — easy to learn — and requires no previous experience. Education is not a factor — 90 hours of Specialized Delehanty Training is all you need. Visit, phone or send postage-free card TODAY for full details.

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THE DELEHANTY INSTITUTE,

126 EAST 13th STREET,

NEW YORK, N. Y.

MAIL THIS CARD *TODAY*

March 18, 1942

Miss Mildred M. Hickman
Board of Education
Cleveland, Ohio.

My dear Miss Hickman:

I have your letter of March 13th, and I am very interested in all you have to say about vocational training defense courses for women.

The Women's Bureau is not the Government agency which has jurisdiction in this field. We make surveys of war industries to show on what occupations women can be satisfactorily employed, and we say further that women could be more extensively employed if they could only have training. I believe you have received them all. I have constantly urged that more attention be given to training women. But we do not - we can not - set up training programs. It is not our job.

It is the State director of vocational education and the local boards of education in the State which have this authority. They operate with the advice of the State Employment Service. Sometimes we hear that it is the Board of Education which is opposed to women entering certain vocational training defense courses. Sometimes we are told it is the local Employment Service officials who are doing the blocking. Both insist that industry will not hire women, or that men are plentiful, so why train women.

I feel that the education and the employment officials have not only been very shortsighted, but they could be doing a great deal more than they are to give information to employers on women's capabilities and proven fitness for many types of factory jobs. Our reports along this line have been sent to the proper officials here in Washington, and they have gone out to every State director of vocational education, as well as to every central State Employment Service office.

You know Elizabeth Magee, I am sure, and perhaps you know she was appointed the Women's Bureau representative on the labor supply committee for the region in which Ohio falls. She has a great deal of information, and, with what you know, I think a great deal might be done to get wider training opportunities established for women.

In the last two months, there has been more awareness of the important role in the labor force women now occupy. The need for more and more workers is so great that in many factories women are first being hired and then trained on the job. Some industries prefer this (ammunition plants). The Training-Within-Industry program of the War Production Board is now giving training to men and women already in a plant to qualify them to teach the new employees being hired; it is a good program.

The vocational schools still have a job to do in giving wholly inexperienced persons certain factory skills, and we hope that women in the middle-age group, as well as the young woman, will have a chance. I believe it is the Employment Service which can give you information about aptitude tests (and other means) for selecting the best out of the list of applicants who shall receive training. A real place for the vocational schools in the training program comes also in "supplementary" training courses, where related skills are taught the factory worker. If women were admitted to such courses (blueprint reading) they could be up-graded. An educational job on the employer may be needed here, so he would recommend women employees, as well as men, for these courses.

I hope this information will be helpful; some of it you probably know and so was unnecessary, but I wanted to tell you the whole story in general.

We are very busy here, and plans at present for out-of-town engagements do not include Cleveland. I should like to see you, if I were coming, and I appreciate your very kind invitation.

Sincerely yours,

Mary Anderson, Director

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BOARD OF EDUCATION
CLEVELAND, OHIO

DEPARTMENT
OF
INSTRUCTION

March 13, 1942

Miss Mary Anderson, Director
Women's Bureau
U. S. Department of Labor
Washington, D. C.

My dear Miss Anderson:

What IS happening to the much heralded program which is supposed to train women for industrial jobs? We are doing nothing in Cleveland and I have inquired in a number of cities where I fully expected to find them far more advanced in their program, but I am bitterly disappointed. Again I turn to you.

In what cities are the most adequate training programs set up for women? Will you give me the names of the people under whom those programs are functioning? And whether they are organized by private industry or by schools?

Has your bureau issued any bulletins or reprints(in addition to those listed below) on training programs that are already set up or as outlines of programs which should be set up?

Employment of Women in the Manufacture of Small Arms Ammunition - June, 1941
Employment of Women in the Manufacture of Artillery Ammunition
Women's Part in Manufacturing for Defense - Sept. 1941
Defense Program Increases Need for Women Workers November, 1941
Women Workers at the Turn of the New Year - Jan. 1942
Women at Work - WO 42-5 - Jan. 25, 1942

Have you any convictions or experience on how women should be selected for training program? I am grateful to you for any information you can give me or any sources that you may be able to indticate as to where I should send for more detailed information which you may not be able to take the time to explain.

Is there any possibility that you are coming into our territory within the near future? If so, I should very much like to have the opportunity to have at least a brief conference with you. Possibly, you would do me the honor of having dinner or luncheon with me.

I am glad that we have you at the head of the Bureau and I have full confidence that you will go as far toward opening up opportunities for women as anyone can. It is, however, bitterly disappointing to find that while there is a hue and cry about industry's need for greater production there is little opportunity given to women to do anything other than volunteer work or such drudgery as farm labor.

With very cordial personal regards and with gratitude to you for any information which you may be able to have forwarded to me, I am

Sincerely,

Mildred M. Hickman

MMH/s

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF INDIAN AFFAIRS
FIELD SERVICE

Haskell Institute
Lawrence, Kansas
March 7, 1942

Miss Mary Anderson,
Director, Women's Bureau,
U. S. Department of Labor,
Washington, D. C.

My dear Miss Anderson:

I am very glad to receive your letter of March 3 with which you enclosed material concerning the vocational training of women for defense jobs.

I have read the copy of your talk made at the American Management Association Conference in Chicago with a great deal of interest. It is the most helpful thing I have been able to obtain as far as background is concerned thus far.

Inspection of the mimeographed pamphlets which you sent reveals that this is the exact information I had hoped to get. You have no idea how grateful I am to you for sending this material.

Although we are now offering a number of courses preparing young women for jobs, we feel the necessity of instituting training which will have a direct bearing on the defense effort. Such information as you have given me, plus our knowledge from visitation to industry and to defense schools in this area, will probably make possible the inclusion of new courses next semester.

I hope you will place my name on your mailing list to receive any further publications you may have in the future available for distribution. Your kind help is more than appreciated.

listed
Nov 143 +
Defense Reports

Sincerely yours,

G. Warren Spaulding

G. Warren Spaulding,
Superintendent.

GWS/dsc

CROSS REFERENCE SHEET

Name or Subject | File No.

J. Warren Spaulding - - - 344

Regarding Office of Indian Affairs Dept of the Interior | Date

Letter of Mar 7,

SEE

Name or Subject | File No.

File cross reference form under name or subject at top of the sheet and by the latest date of papers. Describe matter for identification purposes. The papers, themselves should be filed under name or subject after "SEE."

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March 6, 1942

Mr. William F. Patterson
Chief of Apprenticeship
Labor Standards Division
U. S. Department of Labor
Washington, D. C.

Dear Mr. Patterson:

In view of the importance of women's work in war production and the necessity of within-industry training of women, it is very desirable that the Women's Bureau shall cooperate closely in the program for such training.

Therefore I am writing to ask if you will come to a small conference in my office at 10:00 o'clock Wednesday morning, March 11, to discuss this matter.

The Training Within Industry Division of the War Production Board will be represented and I am also asking Miss McKelvey and Mrs. Beyer to be present.

Sincerely yours,

Mary Anderson, Director

MA:IS

yes + Anne Davis

March 6, 1942

Mrs. Clara M. Beyer, Assistant Director
Division of Labor Standards
U. S. Department of Labor
Washington, D. C.

Dear Mrs. Beyer:

In view of the importance of women's work in war production and the necessity of within-industry training of women, it is very desirable that the Women's Bureau shall cooperate closely in the program for such training.

Therefore I am writing to ask if you will come to a small conference in my office at 10:00 o'clock Wednesday morning, March 11, to discuss this matter.

The Training Within Industry Division of the War Production Board will be represented, and I am asking Miss McKelvey to be present. Although I am asking Mr. Patterson of the Apprenticeship Training Division to come, I hope that it will be possible for you also to be present.

Sincerely yours,

Mary Anderson, Director

MA:IS

March 6, 1942

Mr. C. R. Dooley, Director
Training Within Industry
War Production Board
Social Security Bldg.
Washington, D. C.

My dear Mr. Dooley:

In view of the importance of women's work in war production and the necessity for within-industry training of women, it is very desirable that the Women's Bureau shall cooperate closely in the program for such training.

Therefore I am writing to ask if you will come to a small conference in my office (Room 1305 Labor Department) at 10:00 o'clock Wednesday morning, March 11, to discuss this matter.

The Apprenticeship Training Division of the Department of Labor will be represented and I am also asking Miss McKelvey and Mr. Dietz to be present. Although I am asking Mr. Dietz to come, I hope that it will be possible for you also to be present.

Sincerely yours,

Mary Anderson, Director

MA:IS

March 6, 1942

Mr. Walter Dietz, Associate Director
Training Within Industry
War Production Board, Labor Division
Social Security Bldg., Room 3762
Washington, D. C.

My dear Mr. Dietz:

In view of the importance of women's work in war production and the necessity for within-industry training of women, it is very desirable that the Women's Bureau shall cooperate closely in the program for such training.

Therefore I am writing to ask if you will come to a small conference in my office (Room 1305 Labor Department) at 10:00 o'clock Wednesday morning, March 11, to discuss this matter.

The Apprenticeship Training Division of the Department of Labor will be represented and I am also asking Miss McKelvey and Mr. Dooley to be present. Although I am asking Mr. Dooley to come, I hope that it will be possible for you also to be present.

Sincerely yours,

Mary Anderson, Director

MA:IS

March 6, 1942

Miss Thelma McKelvey
Chief, Women's Labor Supply Service
War Production Board, Labor Division
Room 3744 Social Security Bldg.
Washington, D. C.

Dear Miss McKelvey:

In view of the importance of women's work in war production and the necessity of within-industry training of women, it is very desirable that the Women's Bureau shall cooperate closely in the program for such training.

Therefore I am writing to ask if you will come to a small conference in my office at 10:00 o'clock Wednesday morning, March 11, to discuss this matter.

The Training Within Industry Division of the War Production Board and the Apprenticeship Training Division of the Department of Labor will be represented at this meeting, and I sincerely hope that it will be possible for you to be present.

Sincerely yours,

Mary Anderson, Director

MA:IS

February 19, 1942

Miss Helen Potter,
National Catholic Community Service,
1312 Mass. Ave., N.W.
Washington, D.C.

My dear Miss Potter:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MAtam

February 19, 1942

Mrs. Kathleen J. Lowrie,
Women's Bureau Representative,
Regional Labor Supply Committee,
4317 Glendale,
Detroit, Mich.

My dear Mrs. Lowrie:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 19, 1942

Miss Elizabeth S. Magee,
Women's Bureau Representative,
Regional Labor Supply Committee,
Consumers' League of Ohio,
341 Engineers Bldg.,
Cleveland, Ohio

My dear Miss Magee:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor, Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MAlam

February 19, 1942

Mrs. May Moyers McElroy, President
Zonta International,
826 Mills Bldg.,
Washington, D.C.

My dear Mrs. McElroy:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 19, 1942

Miss Elizabeth M. McStea,
National Catholic Community Service,
1312 Mass Ave., N.W.
Washington, D.C.

My dear Miss McStea:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that is is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 19, 1942

Mrs. Agnes J. O'Connor,
Women's Bureau Representative,
Regional Labor Supply Committee,
2511 N. Campbell Ave.,
Chicago, Illinois

My dear Mrs. O'Connor:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MAtam

February 19, 1942

Miss Martha Porter,
~~Women's Bureau Representative~~,
~~Regional Labor Supply~~ Committee,
12 Walker St.,
Cambridge, Mass.

My dear Miss Porter:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 19, 1942

Miss Elsie Wolfe,
~~Women's Bureau Representative,~~
~~Regional Labor Supply Committee,~~
Congress Hotel,
Chicago, Ill.

My dear Miss Wolfe:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 19, 1942

Miss Caroline Manning,
~~Women's Bureau Representative,~~
~~Regional Labor Supply Committee,~~
5521 Kimbark Ave.,
Chicago, Ill.

My dear Miss Manning:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 19, 1942

Miss Margaret Anderson,
[redacted],
Hotel Peabody,
Memphis, Tenn.

My dear Miss Anderson:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MAima

February 19, 1942

Miss Martha Ziegler,
[redacted],
Regional Labor Supply Committee,
Congress Hotel,
Chicago, Illinois

My dear Miss Ziegler:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 19, 1942

Miss Ethel E. Erickson,
~~Women's Bureau Representative,~~
~~Regional Labor Supply Committee,~~
Clark Hotel,
Los Angeles, Calif.

My dear Miss Erickson:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 19, 1942

Mrs. Carrie G. Hager,
~~Women's Bureau Representative,~~
~~Regional Labor Supply Committee,~~
Park Central Apts.,
519 33rd St.,
Philadelphia, Pa.

My dear Mrs. Hager:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 17, 1942

Mrs. Pearl Case Blough, Secretary
U.S.O. Services for Women and Girls
United Service Organizations
Empire State Building
New York City

My dear Mrs. Blough:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

MA:IS

February 19, 1942

Mrs. Harris T. Baldwin,
National League of Women Voters,
726 Jackson Place,
Washington, D.C.

My dear Mrs. Baldwin:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 19, 1942

Miss Anna Rose Kimpel,
National Catholic Community Service,
1312 Mass. Ave., N.W.,
Washington, D.C.

My dear Miss Kimpel:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 19, 1942

Miss Frances Valentine,
Women's Bureau Representative,
Regional Labor Supply Committee,
Green Meadow Farm,
Ashland, Mass.

My dear Miss Valentine:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 19, 1942

Mrs. Elsa Z. Duncan,
Women's Bureau Representative,
Regional Labor Supply Committee,
128 W. Elmwood Pl.,
Minneapolis, Minnesota

My dear Mrs. Duncan:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 19, 1942

Miss Rebecca G. Smaltz,
Women's Bureau Representative,
Regional Labor Supply Committee,
315 N. 12th St.,
Phila. Pa.,

My dear Miss Smaltz:

You will be interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that the telegram sent to Mr. Nelson by the members of the January 21-22 conference had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of woman.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:sm

February 17, 1942

Miss Evelyn Adler
United Office and Professional
Workers of America
8 West 40th Street
New York City

My dear Miss Adler:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement ~~states~~ says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

MA:IS

February 18, 1942

Mrs. Frances Valiant Speek,
American Association of University Women,
1634 Eye St., N.W.
Washington, D.C.

My dear Mrs. Speek:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:sm

February 18, 1942

Mrs. Winifred P. Cooper-Carlson
United Automobile Workers of America
733 E. Witherbee Street
Flint, Mich.

My dear Mrs. Cooper-Carlson:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director.

Enclosure
MA:MMC

February 18, 1942

Miss Sadie Reisch,
International Ladies' Garment
Workers' Union
Childrens & Cotton Dressmakers Union,
34 William St.,
Newark, N.J.

My dear Miss Reisch:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branck, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in whimh I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure

MA:am

February 18, 1942

Miss Elizabeth Paschall,
American Federation of Office Employees
901 Mass. Ave., N.W.
Washington, D.C.

My dear Miss Paschall:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 18, 1942

Miss Margaret Scattergood,
American Federation of Office Employees,
901 Mass. Ave., N.W.
Washington, D.C.

My dear Miss Scattergood:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure

MAtam

February 18, 1942

Mrs. Anna H. Settle,
Consumers' League of Kentucky
316 Kentucky Home Life Bldg.,
Louisville, Ky.

My dear Mrs. Settle:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 18, 1942

Mrs. Harriman Simmons,
Consumers' League of New Jersey,
9 Clinton St.,
Newark, N.J.

My dear Mrs. Simmons:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 18, 1942

Miss Lilian Sharpley,
National Board of the Y.W.C.A.
600 Lexington Ave.,
New York, New York

My dear Miss Sharpley:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 17, 1942

Dr. Esther Cole, Franklin,
American Association of University Women,
1634 Eye St., N.W.
Washington, D.C.

My dear Dr. Franklin:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

MA:AM

February 18, 1942

Miss Elizabeth Nord
Textile Workers' Union
of America
20 Olneyville Square
Providence, R. I.

My dear Miss Nord:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
IS:ml

February 18, 1942

Miss Florence Thorne,
American Federation of Labor,
901 Mass. Ave., N.W.
Washington, D.C.

My dear Miss Thorne:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure
MA:am

February 17, 1942

Mrs. Warwick Hobart,
National Consumers' League,
114-East 32nd St.,
New York, New York

My dear Mrs. Hobart:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

MA:am

February 17, 1942

Miss Effie Loudermilk,
Quota Club International Inc.,
Commercial Bank Bldg.,
Bluefield, W.Va.

My dear Miss Loudermilk:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Enclosure

MA:am

February 18, 1942

Mrs. F. H. Clausen
General Federation of Women's Clubs
Horicon, Wisconsin

My dear Mrs. Clausen:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director.

Enclosure
MA:MMG

February 18, 1942

Mrs. Julia Katz
Congress of Women's
Auxiliaries, C.I.O.
1407 L Street, N. W.
Washington, D. C.

My dear Mrs. Katz:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director.

Enclosure
MA:NMC

February 18, 1942

Miss Ruth Young
United Electrical, Radio
and Machine Workers of America
592 Fulton Street
Brooklyn, N. Y.

My dear Miss Young:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director.

Enclosure
MA:
MHO

February 18, 1942

Miss Margaret Wiesman
Consumers' League of Massachusetts
31-A Mt. Vernon Street
Boston, Mass.

My dear Miss Wiesman:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director.

Enclosure
MA:
MSG

February 17, 1942

Mrs. Grace Hines
United Rubber Workers of America,
1715-Ohio St.,
Cuyahoga Falls, Ohio

My dear Mrs. Hines:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

MAtam

February 17, 1942

Miss Frances Cummings,
National Federation of Business and
Professional Women's Clubs,
1819 Broadway,
New York, New York

Dear Miss Cummings:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

MA:AM

February 17, 1942

Mrs. Dorothy J. Bellanca,
Amalgamated Clothing Workers of
America,
15 Union Square,
New York, New York

My dear Mrs. Bellanca:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

Ma:
am

February 17, 1942

Miss Opal Boynton,
National Board of the Y.W.C.A
600 Lexington Ave.,
New York, New York

My dear Miss Boynton:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

MA:AM

February 17, 1942

Mrs. Florence Clowes,
Steel Workers' Organizing Committee,
855 Eighth Ave.,
Brackenridge, Pa.

My dear Mrs. Clowes:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

MA:am

February 17, 1942

Miss Elizabeth Christman,
National Women's Trade Union League
of America,
317-18 Machinists Bldg.,
Washington, D.C.

My dear Miss Christman:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

MA:am

February 17, 1942

Mrs. Wm. H. Chambers,
National Board of the Y.W.C.A.
600 Lexington Ave.,
New York, New York

Dear Mrs. Chambers:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

MA:am

February 17, 1942

Dr. Nina Fay Calhoun,
International Association of Altmasa
Clubs, Inc.,
Medical Arts Bldg.,
Dallas, Texas

My dear Dr. Calhoun;

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

MA:am

February 17, 1942

Mrs. Jean Bennett,
American Federation of Soroptimist Clubs,
624 Indiana Ave.N.W.
Washington, D.C.

My dear Mrs. Bennett:

You will be very much interested in the enclosed statement issued by the Chief of the Defense Training Branch, Labor Division, War Production Board.

I am sure that your telegram to Mr. Nelson had its effect, although the letter transmitting the statement says that it is in reply to my letter of January 2, in which I urged the training of women.

I have also received a similar letter from Mr. Studebaker, Commissioner of Education.

Sincerely yours,

Mary Anderson, Director

MA:am

ILLINOIS INSTITUTE OF TECHNOLOGY
A CONSOLIDATION OF ARMOUR INSTITUTE OF TECHNOLOGY AND LEWIS INSTITUTE
CHICAGO

Divisions:
ARMOUR COLLEGE OF ENGINEERING
LEWIS INSTITUTE OF ARTS AND SCIENCES

February 19, 1942

Miss Mary Anderson, Director
U. S. Department of Labor
Women's Bureau
Washington, D. C.

Dear Miss Anderson:

Thank you very much for the generous supply of material. It will be very helpful to us as we proceed in our training program for women.

Since the classes start March ninth and will continue for twelve weeks, we can tell you better in a few weeks from now what the general outcome and results will be.

We are getting many inquiries from candidates who are very anxious to be trained to do their bit.

We appreciate your help and will be glad for any suggestions from you at any time.

Sincerely,

Kathryn Judkins

Kathryn Judkins
Coordinator

KJ:CF

Training

February 18, 1942

Lt. Col. N. A. Burnell, 2d
Director, Defense Training
Federal Security Agency
Social Security Bldg., Room 5444
Washington, D. C.

My dear Col. Burnell:

Thank you so much for sending me the statement of policy regarding the training of women. I was very glad indeed to receive this and I am informing our advisory committees that such a statement of policy has been issued.

With best wishes,

Sincerely yours,

Mary Anderson, Director

MA:IS

FEDERAL SECURITY AGENCY

WASHINGTON

OFFICE OF
THE ADMINISTRATOR

February 11, 1942

Miss Mary Anderson
Director, Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

Colonel McSherry asked me to reply to your letter dated January 2, 1942, suggesting amendments to the policy on training of women contained in Supplement #1 to Administrative Procedures Governing Conduct of National Defense Training Programs of the Federal Security Agency.

Upon reconsideration of this matter in the light of the present situation, the attached announcement was issued today.

It may be of interest to you to know that as of January 15, 1942, there was a total of approximately 95,000 women participating in the defense training programs.

Your kindness in bringing this matter to our attention is genuinely appreciated.

Sincerely yours,

Lt. Col. N. A. Burnell, 2d.

N. A. BURNELL, 2d.
Director, Defense Training

Encl.

Federal Security Agency
Dr C. 5444

Fed Sec 2449
or
Wm Rupp
4537

Manager

February 10, 1942

POLICY REGARDING TRAINING OF WOMEN

In view of the increasing shortages of male workers and the increasing demand for the employment of women throughout the country and in a wide range of occupations, the Labor Division of the War Production Board has announced the policy that the employment of women shall be facilitated to meet the needs of the war program. This necessitates the immediate extension of defense training to women on a basis of equality with the training of men.

In referring women to defense training courses the same policies that govern the referral of men should be followed, that is, they should be selected on the basis of qualification for the occupations in which training is offered, due consideration being given to the physical requirements of the occupations.

This policy amends and amplifies the provisions of paragraph 6, Supplement #1, to Administrative Procedures Governing the Conduct of NYA-WPND Defense Work Projects and Training dated November 29, 1941, as well as present procedures of the pre-employment and supplementary courses given in the public vocational schools. It shall not be construed to interfere with the immediate necessity for training of workers displaced by Government curtailments on production or other governmental action.

Approved February 10, 1942.

L.S.H.

J.H.L.

D.B.

/s/ N.A. Burnell, 2nd
Chief, Defense Training Branch
Labor Division

FEDERAL SECURITY AGENCY

U. S. OFFICE OF EDUCATION

WASHINGTON

February 10, 1942

Miss Mary Anderson
Director, Women's Bureau
U. S. Department of Labor
Washington, D. C.

Dear Miss Anderson:

This is in further reply to your letter to me of January 2, calling my attention to a statement in the Supplement No. 1 to Administrative Procedures Governing Conduct of National Defense Training Programs of the Federal Security Agency, especially Paragraph 6 which states that, "Except as may be authorized by the Office of Production Management, the training of girls for jobs in which they are not customarily employed will not be permitted on youth defense work projects".

You, of course, understand that this Supplement No. 1 was drawn up in the fall. Some weeks of conferences were required to develop it to the satisfaction of the persons signing the document on November 29, 1941. The instructions to limit the training of girls to jobs in which they were customarily employed was designed as a general limitation to control the use of available work stations so that they might not be used too extensively for the training of persons not readily employable. A procedure exists for the approval of training for women in all fields where the advisability of extending such training has been demonstrated.

However, it is agreed that the events of the past two months have removed the necessity for restricting the training of women as rigidly as the statement in Supplement No. 1 does. An amendment to this supplement will be issued authorizing the training of women in accordance with the local needs and opportunities for employment.

Cordially yours,

J. W. Studebaker

Commissioner

FEDERAL SECURITY AGENCY

U. S. OFFICE OF EDUCATION

WASHINGTON

January 12, 1942.

Miss Mary Anderson,
Director, Women's Bureau,
U. S. Department of Labor,
Washington, D. C.

My dear Miss Anderson:

In reply to your letter of January 2, may I say that the proposal you make with respect to the modification of Paragraph 6 of Supplement No. 1 to Administrative Procedures Governing Conduct of National Defense Training Programs of the Federal Security Agency, is under consideration. I will communicate with you again soon to let you know just what decision has been reached.

Cordially yours,

J. W. Studebaker

Commissioner.

January 2, 1942.

Mr. John W. Studebaker, Commissioner,
U. S. Office of Education,
Interior Building,
Washington, D. C.

My dear Mr. Studebaker:

My attention has been called to the Supplement No. 1 to Administrative Procedure governing conduct of national defense training programs of the Federal Security Agency and especially to paragraph 6 which states that "Except as may be authorized by the Office of Production Management, the training of girls for jobs in which they are not customarily employed will not be permitted on youth defense work projects." This regulation, I note, was approved by you. I realize that this bulletin was issued November 29, 1941 before we entered the war, but even at that time the lack of trained women equipped to enter the war production industries was acute, therefore, I was very much surprised to read your statement about the training of girls.

The Women's Bureau has urged throughout the entire emergency period that women be trained now for the jobs that they eventually will be called upon to fill. Now that war has been declared, and the all-out production for which the President has called will mean double and treble the present production efforts, the use of women on jobs for which "they are not customarily employed" will be imperative. It seems to me absolutely essential that women be given the training now that will equip them to perform efficiently the work they will be required to do as the shortage of male labor deveèpps.

In view of the changed conditions caused by the declaration of war, I sincerely hope that the policy relating to the training of girls as expressed in paragraph 6 of Supplement No. 1 may be reversed.

I am sending a copy of this letter to all signers of the supplement.

Sincerely yours,

Mary Anderson, Director.

FEDERAL SECURITY AGENCY
SOCIAL SECURITY BOARD
WASHINGTON

IN REPLY REFER TO
FILE NO. 13:ES

BUREAU OF EMPLOYMENT SECURITY

January 9, 1942

Miss Mary Anderson,
Director,
Women's Bureau,
U.S. Department of Labor,
Washington, D. C.

Dear Miss Anderson:

This is in answer to your letter of January 2 addressed to Mr. Ewan Clague concerning Supplement No. 1 to Administrative Procedures Governing Conduct of National Defense Training Program of the Federal Security Agency.

Since the declaration of war, and even a short time before the declaration of war, a number of staff members of the United States Employment Service have indicated the need for a new policy relating to the training of women for war industries. I know how important this matter is from reports of the British experience which have come to my attention, and how lacking in training women were in Britain when their services were urgently needed to fill the gaps in industry left by men who went into the armed forces.

Pending a change in the policy expressed in Supplement No. 1, you will be interested to know that we are re-emphasizing to all the States that the local employment offices encourage the training of women. Now that the President has so strongly outlined our production goals, I am sure that we will have no need to fear that the training of women in occupations in which they have not been customarily employed and for which there has been no demand for their services will meet with resistence.

May I say that the United States Employment Service would like very much to cooperate with you in bringing to the attention of the labor policy committee the recommendation that a revision be made in the procedures which restrict the amount of training given to women.

Very sincerely yours,

John J. Corson

John J. Corson, Director,
United States Employment Service

January 2, 1942.

Mr. Aubrey Williams, Administrator,
National Youth Administration,
Washington, D. C.

My dear Mr. Williams:

My attention has been called to the Supplement No. 1 to Administrative Procedure governing conduct of national defense training programs of the Federal Security Agency and especially to paragraph 6 which states that "Except as may be authorized by the Office of Production Management, the training of girls for jobs in which they are not customarily employed will not be permitted on youth defense work projects." This regulation, I note, was approved by you. I realize that this bulletin was issued November 29, 1941 before we entered the war, but even at this time the lack of trained women equipped to enter the war production industries was acute, therefore, I was very much surprised to read your statement about the training of girls.

The Women's Bureau has urged throughout the entire emergency period that women be trained now for the jobs that they eventually will be called upon to fill. Now that war has been declared, and the all-out production for which the President has called will mean double and treble the present production efforts, the use of women on jobs for which "they are not customarily employed" will be imperative. It seems to me absolutely essential that women be given the training now that will equip them to perform efficiently the work they will be required to do as the shortage of male labor develops.

In view of the changed conditions caused by the declaration of war, I sincerely hope that the policy relating to the training of girls as expressed in paragraph 6 of Supplement No. 1 may be reversed.

I am sending a copy of this letter to all signers of the supplement.

Sincerely yours,

Mary Anderson, Director.

Memorandum 5.

U. S. Department of Labor
Women's Bureau
Washington

July 23, 1941

Notations made of conference between Genevieve Lowry, Correlator, U.S.O., National Board Relationships, National Y. W. C. A.; Miss A. Hooley, National Catholic Community Service; Miss Cletch, Travelers' Aid Society; and members of Women's Bureau Staff - Bertha Nienburg, Mary Robinson, and Louise Stitt.

Re: Services requested of the Women's Bureau by agencies engaged in work among women workers in defense areas and industries.

Conditions are changing so rapidly in defense areas that agencies, both public and private, responsible for maintaining proper labor and living standards of women workers are finding it exceedingly difficult, due to the absence of current data, to formulate proper policies and to plan adequate programs. To meet this deficiency the Women's Bureau has been requested by the National Board of the Y.W.C.A., the National Catholic Community Service, and the Travelers' Aid Society, none of which is a research agency, to secure the basic data essential to the formulation of programs which are to be carried on for the welfare of women workers in defense areas.

Specifically they request that a number of typical defense areas be selected, of which the Women's Bureau would make spot checks at frequent intervals to determine the trends in conditions that directly affect women workers.

Data urgently needed relate to the number of women employed in these areas, the rate at which the number is increasing, the kind of work and the beginning wage rates at which they are employed, the conditions under which they are working and living, and the facilities and services required in the community to guarantee the general well-being of the women workers. Information that can be used to prevent unnecessary migration of women workers, and that will aid in constructive counselling of women and girls who contemplate changing their occupations as a result of the demands of defense industries is very much needed.

Advanced information concerning the location of new defense establishments and facts as to whether or not women are to be employed in these plants in large numbers and at what occupations is essential for all agencies planning for the reception, housing and recreation of women workers in the new and expanding industrial areas. These data the Women's Bureau is asked to secure and to distribute as frequently as is possible.

January 2, 1942.

Mr. Ewan Clague, Director,
Bureau of Employment Security,
Social Security Board,
Washington, D. C.

My dear Mr. Clague:

My attention has been called to the Supplement No. 1 to Administrative Procedure governing conduct of National defense training programs of the Federal Security Agency and especially to paragraph 6 which states that "Except as may be authorized by the Office of Production Management, the training of girls for jobs in which they are not customarily employed will not be permitted on youth defense work projects." This regulation, I note, was approved by you. I realize that this bulletin was issued November 29, 1941 before we entered the war, but even at that time the lack of trained women equipped to enter the war production industries was acute, therefore, I was very much surprised to read your statement about the training of girls.

The Women's Bureau has urged throughout the entire emergency period that women be trained now for the jobs that they eventually will be called upon to fill. Now that war has been declared, and the all-out production for which the President has called will mean double and treble the present production efforts, the use of women on jobs for which "they are not customarily employed" will be imperative. It seems to me absolutely essential that women be given the training now that will equip them to perform efficiently the work they will be required to do as the shortage of male labor develops.

In view of the changed conditions caused by the declaration of war, I sincerely hope that the policy relating to the training of girls as expressed in paragraph 6 of Supplement No. 1 may be reversed.

I am sending a copy of this letter to all singers of the supplement.

Sincerely yours,

Mary Anderson, Director.

January 2, 1942

Miss Frances M. Williams
Executive Secretary
American Youth Congress
230 Fifth Avenue
New York, New York

My dear Miss Williams:

I have your letter to me and the copy to the President of the United States in regard to the employment of young people, particularly young girls.

Our program presented to the Labor Supply Committee of the O.P.M. does not make distinctions between the young girls and the women. They are all women whether they be young or old. In that part of the program referring to the training, we particularly urge that women get the training the same as the men and the boys are getting it.

Most of the women now employed in the defense industries are young girls from 18 years of age up. I think not many under 18 years because of the hazardous employment and I think the employer is loathe to employ too-young people. I have gone through a good many of the factories and I find an astonishing number of girls being employed. In fact to the extent that women are being employed, the young people have much the best of it. It is the older woman that has difficulty in getting employment. I am not saying this because I am not in sympathy with your view point. I am in full sympathy with you in the employment of young women and the committee in the O.P.M. approved the report but it still has to go before another committee before it can be put into effect. Therefore, there will be another week or two before we can really implement this program, which I regret very much.

Sincerely yours,

Mary Anderson, Director

MA:ml

American Youth Congress

230 FIFTH AVENUE • NEW YORK
MURRAY HILL 6-9140

December 16, 1941

Miss Mary Anderson
Department of Labor
Washington, D. C.

My dear Miss Anderson:

I have just read of your appointment as Head of a Sub-committee in the Office of Production Management, to work on the special problems of women in industry at this time. I think therefore that you will be interested in the decisions of the executive body of the American Youth Congress taken at its monthly meeting last Saturday in regard to training of young people (especially young women as so many young men will necessarily be joining the armed forces). These are set forth in a letter just written to President Roosevelt, a copy of which I enclose for your attention. We would appreciate having your comments on these items at your early convenience.

We are very much concerned with the training and placement of women in defense production. Therefore, I hope that you will keep me informed about any particular plans developing on this so that we may make our contribution to stimulating this program.

With very best wishes, I am

Sincerely yours,

Frances M. Williams

Frances M. Williams
Executive Secretary

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Jack McMichael, *Chairman*
Joseph Cadden, *1st Vice-Chairman*
Maxine McKinley, *Treasurer*
Frances M. Williams, *Executive Secy.*
Marie J. Reed, *Administrative Secy.*
Edward E. Strong, *Organizational Secy.*
Myrtle Powell, *Recording Secy.*

VICE-CHAIRMEN

Esther Cooper, *Southern Negro Youth Congress*
Leonard Detweiler, *National Intercollegiate Christian Council*
Naomi Ellison, *National Industrial Girls Council, YWCA*
Gerald Harris, Jr., *Alabama Farmers Union*
Jean F. Humphreys, *United Christian Youth Movement*
Harriet I. Pickens, *Business & Professional Girls Council, YWCA*
Ruth Shields, *National Intercollegiate Christian Council*

UOPWA 16

December 16, 1941

Honorable Franklin D. Roosevelt
The White House
Washington, D.C.

My dear Mr. President:

The Cabinet (national executive committee) of the American Youth Congress sends you congratulations on the calling of the Government-Labor-Industry Conference to be convened for the first time tomorrow, and best wishes for its successful functioning at this critical time when the "Battle of Production" must be won in this country.

We recognize that there are many problems involved in speeding-up and increasing production for national defense — to arm our own forces and to continue unabated the commitments we have made to our allies: Great Britain, the Soviet Union, and China. We feel that all of America's resources must be turned over to this job, and that any sentiment or continued action for "business as usual" must cease immediately since it jeopardizes our whole crucial fight against Hitler and Hitlerism. We believe that this Conference is the method to use, and that its original focus on settlement of labor-industry disputes should be extended to deal with the whole defense production problem. We trust that the outrageous and dangerous Smith (anti-labor) Bill will definitely be "dropped" and supplanted by this Conference method. Labor should be given additional voice and position in the very near future in the various Government agencies carrying out the defense production work.

We urge that this Conference plan carefully to utilize to the fullest (and much more than at present) the energies and devotion of young men and women in America. There are still many unemployed young people in this country, and there are still thousands very inadequately trained for production work. Since young women must replace many men in industry, especially intensive training should be instituted for them at once. While supporting the pending legislation (in Congress, HR 6194, introduced by Mr. Lyndon B. Johnson) to coordinate NYA and CCC into a Civilian Youth Administration, we call the attention of the Conference to the fact that this program must be greatly expanded to reach all the young people, better coordinated with the training program of the Office of Education - and all youth-training geared in more thoroughly and quickly with defense production.

Sincerely yours,

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Frances M. Williams, Executive Secretary

January 2, 1942.

Colonel Frank McSherry,
Deputy Director of Labor Supply and Training,
Office of Coordinator of Health, Welfare
and Related Defense Activities,
Washington, D. C.

My dear Colonel McSherry:

My attention has been called to the Supplement No. 1 to Administrative Procedure governing conduct of national defense training programs of the Federal Security Agency and especially to paragraph 6 which states that "Except as may be authorized by the Office of Production Management, the training of girls for jobs in which they are not customarily employed will not be permitted on yough defense work projects." This regulation, I note, was approved by you. I realize that this bulletin was issued November 29, 1941 before we entered the war, but even at that time, the lack of trained women equipped to enter the war production industries was acute, therefore, I was very much surprised to read your statement about the training of girls.

The Women's Bureau has urged throughout the entire emergency period that women be trained now for the jobs that they eventually will be called upon to fill. Now that war has been declared, and the all-out production for which the President has called will mean double and treble the present production efforts, the use of women on jobs for which "they are not customarily employed" will be imperative. It seems to me absolutely essential that women be given the training now that will equip them to perform efficiently the work they will be required to do as the shortage of male labor develops.

In view of the changed conditions caused by the declaration of war, I sincerely hope that the policy relating to the training of girls as expressed in paragraph 6 of Supplement No. 1 may be reversed.

I am sending a copy of this letter to the other signers of the supplement.

Sincerely yours,

Mary Anderson, Director.

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Supplement No. 1 to ADMINISTRATIVE PROCEDURES GOVERNING CONDUCT OF NATIONAL DEFENSE TRAINING PROGRAMS OF THE FEDERAL SECURITY AGENCY

Subject: NYA - VE-ND DEFENSE WORK PROJECTS AND TRAINING

The purpose of this supplement is to clarify certain questions which have arisen in connection with the operation of National Youth Administration defense work projects and the organized shop training, provided by the vocational schools.

1. In order that the maximum benefit to national defense may be obtained from joint work experience and organized shop training programs, the closest coordination is essential. New NYA defense work projects will be established and approved only after a thorough analysis is made by the local NYA officials in conjunction with the local vocational school authorities and the local Employment Service to be sure that the following conditions are met:

a. That there is an actual need for the trainees upon completion of the course. Exceptions as to this may be made in those cases in which unlimited training is authorized by the Chief, Defense Training Branch, Labor Division, Office of Production Management.

b. That proper equipment and other plant facilities are available in either the NYA shop or a vocational school for developing the desired essential skills necessary for employment in defense industries.

c. That there are available qualified (occupationally and otherwise) supervisory and instructor personnel.

d. That there is an ample supply of NYA enrollees who possess the referral specifications necessary for employment in defense industries.

e. That the program of work experience and organized shop training, including a definite time schedule, is mutually agreed to by the NYA supervisor and the supervisor of Vocational Education.

NOTE: The National Office of the National Youth Administration will survey all existing youth work defense programs with a view to reorganizing projects where necessary in order that they will conform to the standards and requirements indicated herein.

2. Considerable misunderstanding has arisen in regard to the number of hours the enrollee is to devote to work experience and training during each month. It is essential that the enrollee devote 160 hours per month to work experience and organized shop training if he is to be paid from funds appropriated for the youth defense work program. There is no exception to this rule.

3. Except as hereinafter provided, the minimum number of hours per month in the schedule shall be 80 hours for work and 60 hours for organized shop training. The allocation of the remaining 20 hours required and the arrangement of the time schedule involving the full 160 hours will be determined by mutual agreement between the NYA supervisor and the supervisor of Vocational Education.

Exceptions to the above required minimums may be authorized as follows:

a. Exception from the established minimum of 80 hours of project work may be approved by the Washington office of the National Youth Administration when the work experience to be provided on the defense project is not geared to specific defense occupations, or is insufficient in amount, or when because of emergency circumstances the Office of Production Management may request it. In such cases, the number of hours of organized shop training provided by the State Board for Vocational Education shall be increased to produce a combined total of 160 hours per month.

b. Exception from the established minimum of 60 hours of organized shop training per month may be approved by the State Board for Vocational Education when in its opinion projects provide a sufficient amount of work geared to the development of skills essential for specific defense jobs. In such cases, the number of hours of project work shall be increased to produce a combined total of 160 hours per month.

4. In any case, the organized shop training shall be carried on in a shop approved under 1-b above, except that not more than 10 hours per month may be devoted to classroom instruction in related subjects.

5. NYA supervisors are responsible for referring all defense project workers to organized shop training as scheduled. Instructors should report absence or misconduct on the part of workers to the NYA supervisor. Failure to attend shop training or failure to do acceptable work will eliminate an enrollee from the defense work project.

6. Except as may be authorized by the Office of Production Management, the training of girls for jobs in which they are not customarily employed will not be permitted on youth defense work projects.

Signed:

J. W. Studebaker
John W. Studebaker, Commissioner
U. S. Office of Education

Ewan Clague
Ewan Clague, Director
Bureau of Employment Security
Social Security Board

Aubrey Williams
Aubrey Williams, Administrator
National Youth Administration

Approved:

Frank J. McSherry
Frank J. McSherry
Director of Defense Training

Dated: November 29, 1941

WOMEN'S BUREAU
U.S.Department of Labor
Washington

TRAINING OF WOMEN FOR DEFENSE WORK

It has long been the custom in industrial plants for training to be done on the job.

In the plants visited by the Women's Bureau this system of training on the job was found, and men as well as women were given some training on jobs on which they were working.

While such training existed in most plants, this investigation did not go into detail as to its extent and method.

Some employers stated that they felt preliminary training for women in the reading of blueprints, in shop practice, and in shop routine would be of great assistance in connection with the additional training on the job.

MEP:ld
11/29/40

ADVANCE RELEASE

ADVANCE RELEASE: For Sunday Papers, June 27, 1943.
Schroeder - WMC - 2036

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION

PM-4408

Concern over a growing shortage of teachers in rural schools is expressed by the Women's Advisory Committee of the War Manpower Commission. The committee, of which Miss Margaret Hickey is chairman, today advanced a 6-point program for women's groups seeking to avert a critical situation in their school systems and reduction of educational standards. The suggested program follows:

1. Campaign against restrictive hiring specifications with regard to marita status and religion.

2. Influence local school boards to raise teachers' salaries within WLB limitations.

3. Initiate campaigns to emphasize education as an essential activity so that teachers and potential teachers will understand they are engaged in such an activity.

4. Urge women who have left the teaching field because of marriage to return for the emergency.

5. Urge high school graduates to enroll in teacher training courses.

6. Persuade inexperienced teachers and those returning to the field to enroll in refresher courses.

Although the WMC has declared teaching an essential activity, Miss Hickey said, thousands of teachers are leaving their profession. According to an Office of Education survey, more than 106,000 rural teachers left their teaching jobs between May and October 1942. During the 1942 summer vacation almost 18,000 of these teachers went into the armed services. Approximately 34,000 found jobs in urban schools, where the rate of pay is higher. More than 22,540 left the teaching profession entirely for work in other fields and 15,000 left because of marriage or retirement.

It was necessary to fill more than 100,000 vacancies in rural schools last fall and this year, Miss Hickey said, adding that the need next fall will be even greater unless definite action is taken.

"Women's groups", she said, "can initiate both national and local campaigns to emphasize the importance of education. "The war has brought additional responsibilities to the teaching profession. We are fighting on far flung fronts to make possible a free world. We must fight on the home front to prepare our future citizens to live and work in such a world. Otherwise victories won at tremendous cost will be lost through ignorance of the principles of democracy. Our children must be worthy of the freedoms for which their fathers and mothers are fighting and working.

"School services must be expanded, not contracted, to stop too early withdrawals, falling attendance and other inroads on the educational well being of our young people."

X-17353

Miss Hickey said that one of the major reasons for large number of resignations among teachers in rural communities is their relatively low income, and added that in school districts where substandard salaries are paid women's organizations can be instrumental in affecting increases.

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Schroeder--WMC 3414

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OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION

For Immediate Release:
Monday, May 17, 1943.

PM-4387

A Nursing Supply and Distribution Unit has been established in the Placement Bureau of the War Manpower Commission, Chairman Paul V. McNutt announced today. The new unit is designed to effect an equitable distribution of graduate nurses for military, governmental, and essential civilian needs, somewhat as does the Procurement and Assignment Service for physicians, dentists, veterinarians, and sanitary engineers.

Establishment of the Nursing Unit under Government auspices, Mr. McNutt explained, comes as a result of requests received from the nursing profession as represented by the National Nursing Council for War Service. The unit also has the approval of the Health and Medical Committee, and Subcommittees on Nursing and Hospitals, Federal Security Agency.

State and local Councils for War Service will be utilized for the operation of the unit. Quotas will be set up on national and state bases for the guidance of nurses in accepting service in military, governmental, and essential civilian activities.

Miss Katherine Tucker, Philadelphia, has been appointed Chairman of an Advisory Committee to the Nursing Supply and Distribution Unit by Mr. McNutt. Miss Tucker is Director of the Department of Nursing Education, University of Pennsylvania.

Other members of the Advisory Committee are Miss Shirley Titus, San Francisco, Calif., Executive Secretary of the California State Nursing Council for War Service; Miss Irene Murchison, Denver, Colo., Supervisor of Nursing Education, Colorado State Board of Nurse Examiners; Miss Lola Knoller, Milwaukee, Wis., Chairman of Private Duty Section, Wisconsin State Nurses Association; Dr. Claude W. Munger, New York City, Director of St. Luke's Hospital; Mrs. Edward Walsh, St. Louis, Mo., Chairman. Voluntary Special Services, American Red Cross Chapter; Miss Laura Grant, New Haven, Conn., Superintendent of Nurses, New Haven Hospital. The Advisory Committee serves the Nursing Supply and Distribution Unit without compensation.

Liaison members include the National Nursing Council for War Services, the American Red Cross, and Government agencies having a substantial interest in nursing. These are U. S. Army, U. S. Navy, U. S. Veterans' Administration, U. S. Public Health Service (Hospital Division and States Relations Division), U. S. Children's Bureau of the Department of Labor, Office of Indian Affairs, Office of Civilian Defense, U. S. Civil Service Commission.

Miss Alma C. Haupt, Washinton, D. C., has been designated Chief, and Miss Louise Baker, San Francisco, California, Associate Chief, of the Nursing Supply and Distribution Unit.

MVR

Charles - Ag. 4026

OFFICE OF WAR INFORMATION
DEPARTMENT OF AGRICULTURE

For Immediate Release
Monday, April 12, 1943

AG-307

Appointment of Miss Florence Hall to head the Women's Land Army activities in the Extension Service was announced today by the War Food Administration of the Department of Agriculture.

Responsibility for the Women's Land Army of the U.S. Crop Corps, which is part of the larger program to help meet the farm labor shortage, has been assigned to the Extension Service of the Department of Agriculture and State Agricultural Colleges.

Miss Hall has been Extension field agent working in the 12 northeastern states since 1928. In coordinating home demonstration work and supervising the extension wartime programs such as nutrition, home food supply and conservation in the home, she has worked with farm organizations, women's clubs and consumer groups as well as with extension groups. Her position has kept her in close touch with labor activities such as the Connecticut Women's Land Army, the American Women's Voluntary Service activities in Maryland and the District of Columbia, and the Women's Farm Service Corps of Maine.

After graduation from Michigan Agricultural College, Miss Hall took special work in nutrition at Teachers' College, Columbia University, and received an honorary degree in home economics from Michigan Agricultural College in 1933. After four years with the Pennsylvania Extension Service, she was employed by the Bureau of Dairy Industry to work with consumers in all parts of the United States organizing "milk for health" campaigns. Miss Hall is a native of Port Austin, Michigan.

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ADVANCE RELEASE

ADVANCE RELEASE: For TUESDAY AFTERNOON Papers, March 23, 1943.
Greenblatt - WMC - 2036

OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION PM-4344

The Women's Advisory Committee of the War Manpower Commission today called upon women's clubs throughout the country to mobilize their members for active service on the nation's farms this summer.

This mobilization, it was emphasized, is not to meet an immediate need but for one foreseen in the summer. It is not expected that women can be given immediate agricultural employment on farms and in food processing establishments in all sections of the country at this time. Applicants for agricultural work will be called as the needs arise in their respective localities.

In a statement to members of women's organizations the Committee, headed by Miss Margaret A. Hickey of St. Louis, urged physically able women to take a "personal responsibility" in meeting critical agricultural labor needs in their communities.

Women's organizations were asked first to find out from their County Agricultural Agent or local U. S. Employment Service Office what are farm labor needs in their particular localities. In those communities where such labor is urgently needed, they are urged to poll their memberships for those willing to work on farms on a seasonal, vacation, or full-time basis and to give this information to the County Agricultural Agent or the U. S. Employment Service. One or the other of these agencies, it was pointed out, has an office in each locality and has responsibility for recruiting and referring farm labor.

Other activities suggested for women's organizations were to aid in mobilizing young people for farm work and provide necessary supervision of their living conditions; to assist local government officials in recruiting farm workers, and to acquaint women generally with the seriousness of the farm and food production problem through club educational program.

The full text of the statement by the Women's Advisory Committee follows:

"The Women's Advisory Committee of the War Manpower Commission recognizes the imperative need for immediate action in order to meet this year's demand for agricultural workers, and affirms that there must be no hesitation on the part of physically able women to assume a personal responsibility in meeting the farm labor needs in their communities.

"The Women's Advisory Committee is convinced that women can and must contribute enormously to food production by supplementing and replacing farm manpower.

"Women's organizations are in a position to assist materially in meeting this demand for agricultural labor, both through their educational programs and their organization membership. The Women's Advisory Committee commends those women's organizations which have responded to the war-time emergency by remaining active on a year-round basis, with no cessation of organizational activity during the summer months.

"At this moment of national crisis in our agricultural situation, and in view of the food requirements of the United Nations, the Women's Advisory Committee recommends and urges that women's clubs and organizations at the community levels immediately appoint agricultural committees to:

"(1) Obtain information as to the agricultural labor requirements in the particular locality from the U.S. Employment Service or the County Agricultural Agent. One or the other is in every locality and has the responsibility for recruiting and referring agricultural labor.

"(2) In those areas where agricultural labor is crucially needed, urge women from the club membership to accept agricultural employment on a seasonal, vacation, or full-time basis whenever and wherever possible; in club meetings find out those willing to do farm work and the type of work which they can do and give this information to the local office of the United States Employment Service or the County Agricultural Agent.

"(3) Urge women to aid in mobilizing young people for work on farms and provide from the club membership the names of those who can give supervision to these young people to assure proper transportation to and from work; working conditions not injurious to their health; and adequate meals and rest periods.

"(4) Urge those women of the organization's membership unable to accept farm employment to volunteer their services to either the County Agricultural Agent or to the local office of the United States Employment Service to aid in mobilizing workers for agricultural employment.

"The Women's Advisory Committee of the War Manpower Commission has full confidence that the women of America will step forward and do their share in relieving farm labor shortages in every agricultural community in the United States."

Transportation MLR

Ross--76437

OFFICE OF WAR INFORMATION
OFFICE OF DEFENSE TRANSPORTATION

For Immediate Release
Tuesday, March 16, 1943 ODT-144

Experiences of four major branches of transportation in the employment of women will be recounted at the opening meeting of the two-day conference on Womanpower in Transportation, to be held in Washington March 18 and 19.

The conference has been called by Otto S. Beyer, Director of the Division of Transport Personnel, Office of Defense Transportation, to consider the widespread employment of women in transportation to replace men joining the armed forces.

The meeting will be held in Room 2117 New Post Office Building. Mr. Beyer will preside.

American experience with the employment of women in transportation will be discussed on Thursday morning by Charles G. Morgan, of the American Trucking Associations; Merwyn Kraft, American Transit Association; W. L. McMillen, American Airlines, Inc., and E. B. Dithridge, of the Pennsylvania Railroad. Mrs. Helen Robison of the Office of Defense Transportation, will present a statistical picture of women in the transportation field, and a three-minute report on the types of transportation jobs women can do will be made by representatives of each branch of the industry.

On Thursday afternoon, Miss Dorothy Sells, of the Office of Defense Transportation, will present a summary of the British experience with the employment of women. Her report will befollowed by a question and answer period.

Four problems with which industry is faced in the employment of women will be discussed at the Friday morning session. Mrs. Clara M. Beyer, of the Division of Labor Standards, Department of Labor, will speak on "State Laws and How They Affect Women in Transportation;" Miss Mary Anderson, of the Women's Bureau, Department of Labor, will outline adjustments which may be made in the transportation field where women are employed; Glenn Brockway, of the Bureau of Placement, War Manpower Commission, will discuss "Recruiting and Selecting Women for Transportation Jobs", and Philip Van Wyck, of the War Manpower Commission, and Miss Cornelia Edge, of the Office of Defense Transportation, will review recommended training programs for women in transportation jobs.

The final session of the conference will take place Friday afternoon. Representatives of labor and management at that meeting will discuss labor agreements as they affect the employment of women in transportation, and a general review of practical steps to be taken in encouraging the increased employment of women in the transportation field will be presented.

Women

CLEVELAND OWI RELEASE

OWI

PM-4344. (ID-5) IMMEDIATE RELEASE (Rec'd 3-23-43 4:30 AM)

Washington, March 23 -- The women's advisory committee of the War Manpower Commission today called upon women's clubs throughout the country to mobilize their members for active service on the nation's farms this summer.

This mobilization, it was emphasized, is not to meet an immediate need but for one foreseen in the summer. It is not expected that women can be given immediate agricultural employment on farms and in food processing establishments in all sections of the country at this time. Applicants for agricultural work will be called as the needs arise in their respective localities.

In a statement to members of women's organizations the committee, headed by Miss Margaret A. Hickey of St. Louis, urged physically able women to take a "personal responsibility" in meeting critical agricultural labor needs in their communities.

In those communities where such labor is urgently needed, they are urged to poll their memberships for those willing to work on farms on a seasonal, vacation, or full-time basis and to give this information to the county agricultural agent or the U. S. Employment Service.

Other activities suggested for women's organizations were to aid in mobilizing young people for farm work and provide necessary supervision of their living conditions; to assist local government officials in recruiting farm workers, and to acquaint women generally with the seriousness of the farm and food production problem through club educational program.

Miss Anderson

OWI Release

Used books cannot be earmarked for individual prisoners. They may be sent to prison camp libraries if they contain no "writing, markings, or extraneous matter." These used books may be given to the Red Cross, YMCA or similar authorized organizations who in turn route them to the New York Consorship Office, for careful checking. If approved here these are sent to the Geneva Headquarters of Red Cross or YMCA and from there are sent to various prison and internee camp libraries.

OWI-1482 (ID-4) IMMEDIATE RELEASE (Rec'd 3-22-43 12:45 PM)

Washington, March 22 — A unique contribution of the union of South Africa to the fighting fronts of the United Nations is the gathering of snake venom for antidotes. Previously, a chief source of supply was the Pasteur Institute of Paris.

Daily, three South African Corporals patrol in ravines and river banks hunting two of the world's deadliest snakes, the South African yellow cobra and the puff adder.

The cobra yields a poison which, acting upon the nervous system, kills in a few minutes while the bite of the puff adder causes virulent blood poisoning. But the venom from these two killers is processed at the South African Institute of Medical Research, in Johannesburg, to form an anti-venine serum for snake bites.

The corporals who gather the venom, "snake sappers" they might be called, use only a long stick in capturing a snake. Then the real work begins.

The snake must be grasped behind its jaw bones, the jaw opened, the fangs pressed through a thin tissue stretched over a wine glass and the head pressed to start the flow of venom through the needle-like teeth the thin liquid is then dried until it resembles epsom salts crystals.

ODT-163 (ID-2) IMMEDIATE RELEASE (Rec'd 3-22-43 12:45 PM)

Washington, March 22 — Representatives of labor unions in the transportation industries went on record as opposing any wage differential between men and women doing the same job as the two-day conference on "womanpower in transportation," sponsored by the Office of Defense Transportation, held its closing session in Washington.

Miss Anderson

While variations of opinion on the types of jobs women are capable of handling were expressed by labor leaders, trade union representatives were unanimous in their insistence that the employment of women to meet manpower shortages shall not be used as a means of reducing wage standards.

Unions in the local transit industry make no distinction between men and women members, union officials told the conference. Union agreements with the airlines also guarantee women the same wages and same benefits accorded men. In the trucking industry, union representatives said, women are accepted as union members with the distinct understanding that they be paid on a par with men workers. The railroad unions, too, insist on equal pay for equal work.

The labor leaders, however, did not agree on the extent to which women can be employed in the various industries. Railroad union officials declared there are many railroad occupations which are not adapted to women and questioned whether seniority rights of women hired by the roads to meet manpower shortages will interfere with the employment of men after the war. Union representatives for the trucking industry argued the wisdom of employing women as over-the-road drivers, although they told the conference that women are proving satisfactory for short hauls and in delivery service.

In local transit and on the airlines, union officials said, their organizations welcome women members, and no discrimination concerning the seniority of women employees is tolerated.

"We are eager for women, and particularly for women operators, in our organization," one spokesman for a local transit union said. "Women are welcome in the industry and in the union as they have been for many years. Nor do we accept women members for the duration only. They are welcome for as long as they want to stay."

Another official of a local transit union pointed out the necessity for unions to establish a policy of equality not only among white men and white women but for Negro men and Negro women as well.

"Once women are admitted into industry, the only problems management can expect to

face are the same problems that arise in regard to men," the official declared. "If the employment of women is to have any meaning, women must have equal work rights with men and the right to work along with men. Unless we give both men and women, regardless of race, employment on the basis that they are able-bodied citizens with the right to work, we will have sacrificed one of the basic principles of trade unionism."

The airline unions have "built no fences around women," union representatives said. Requirements for women are the same as for men, and women are granted full seniority rights in all contracts. While there are no women pilots, women have been accepted into practically every airline job, and union spokesmen said they expect women to remain in large numbers in the industry after the war. The fact that women are preparing to stay in the industry, he said, is indicated by the large numbers of women applicants for apprentice training.

The responsibility of management for adequate training and supervision of women holding jobs on the railroads was stressed by union representatives who pointed out the physical dangers of many railroad occupations. Lack of natural mechanical skill, together with the need for long training periods, they said, automatically bar women from many of the mechanical jobs. Much concern also was expressed concerning the employment of women in railroad jobs on a permanent basis, and union officials discussed proposals for the temporary employment of women so that their work during the emergency period would not entitle them to seniority rights which, in turn, might interfere with the hiring of men after the war.

Spokesmen for governmental agencies discussed problems affecting the employment of women and methods for recruiting women.

Mrs. Clara M. Beyer, of the division of labor standards, Department of Labor, pointed out that most federal labor legislation affects all employed people rather than specific groups.

"Good industrial practice shows the need for standards of employment for men as well as women," she said. "State laws as they affect the employment of women are being relaxed where the industries have proved such relaxation necessary, and the pressure for the repeal of state labor laws is not nearly so great now as it was at the beginning of the war.

The present tendency is to request relaxation only where such procedure has been found to be necessary."

Methods for the recruitment and replacement of women in transportation jobs were discussed by Glenn Brockway, of the Bureau of Replacement of the War Manpower Commission.

"Women should be selected for employment and training on a basis of equality with men," Mr. Brockway stated. "The only qualifications should be ability to do the job and to meet phisical qualifications for the work. Women without children or with children over 14 years of age should be selected first, and every effort should be made to utilize local women who are available."

Philip Van Wyck, also of the War Manpower Commission, and Miss Cornelia Edge, of ODT, outlined training courses for new employees which have been made available to industry by the War Manpower Commission and the Office of Defense Transportation and urged the adoption of devices to adapt equipment for operation by women.

Miss Mary Anderson, of the Women's Bureau, Department of Labor, told the conference that the experience of her bureau had been that women can do almost any job that does not require heavy lifting. She stressed the importance of safe and sanitary working conditions for women and pointed out that oftentimes the improved conditions introduced into an industry as a result of the employment of women greatly facilitated the work of the men on similar jobs.

#

OWI-1485 PAW-111 (ID-16) IMMEDIATE RELEASE (Rec'd 3-22-43 2:30 PM)

Washington, March 22 -- Speeding up of administrative procedure in handling exceptions, appeals or denials under War Production Board conservation orders M-68 and M-68-C, and limitation order L-56 and L-70, all of which affect the petroleum industry, was announced today by petroleum administrator for war Harold L. Ickes.

All documents which are required to dispose of appeals or exceptions filed under the terms of the above orders will now be issued over the signature of deputy petroleum administrator for war Ralph K. Davies. This applies to pending cases as well as new cases.

OWI-1462 (ID-27) IMMEDIATE RELEASE (Rec'd 3-19-43 4:35 PM)

Washington, March 19 -- Petroleum administrator for war Harold L. Ickes denied today that the petroleum administration intends to tell oil wildcatters where to explore for new wells.

WOMEN'S BUREAU
APR 19 1943
DEPARTMENT OF LABOR

He said --

"Unwarranted apprehension has been expressed by certain members of the industry that the petroleum administration for war intends to exercise discriminatory judgment with regard to the drilling of wildcat wells. I contemplate no such action."

Recently, administrator Ickes called for the drilling of at least 4,500 wildcat wells during 1943, fifty percent more than were ever drilled before in any single year.

During the past few years, the rate of production has exceeded the rate of discovery of new oil fields.

Importance of exploratory drillings was emphasized by deputy petroleum administrator Ralph K. Davies. He stated --

"Exploration is more important today than it ever has been. We must find new oil fields at an increased rate if we are to continue to have a productive capacity equal to our needs.

Our reserves are sufficient, it is our daily productive capacity that may fail.

"The quickest method of increasing the productive capacity of this country substantially is through the discovery of new fields. Where wells will be drilled will be left, as it always has been, to the discretion of the wildcatters."

CDT-158 (ID-38) IMMEDIATE RELEASE (Rec'd 3-19-43 6:40 PM)

Washington, March 19 --- Employers in the transportation industries are facing a serious replacement problem so that constant recruitment will be necessary through 1943 to maintain current employment levels, the Conference of womanpower in transportation, sponsored in Washington by the Office of Defense Transportation, was told yesterday.

British experience with the employment of women in the transportation field also was outlined to the representatives of the industries, of labor, and of governmental agencies who attended the meeting.

Miss Dorothy Sells, chief of the personnel supply section of ODT-S division of transport personnel, who returned a few months ago from Great Britain where she studied British utilization of women in the transportation industries, described the types of transportation work which women are doing in the British Isles. She told the conference that 120,000 women are now employed on the four main railroad lines operated by the London transportation board and that 90 per cent of all conductors on buses and street cars are women although British women so far have refused to operate local transit vehicles through the blackouts. The airways and truck lines also have employed a great many women, and women have taken their places in maintenance shops in great numbers.

The degree to which American transportation industries are employing women in an effort to offset manpower shortages was reflected in the report of Mrs. Helen Robison, chief of the personnel requirements section, division of transport personnel.

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The degree to which American transportation industries are employing women in an effort to offset manpower shortages was reflected in the report of Mrs. Helen Robison, chief of the personnel requirements section, division of transport personnel.

"In the eight-month period from May, 1942, to January, 1943, employment increased from 2,612,000 to 2,654,000, and it can be assumed that the heavier burdens in store for transportation in 1943 will require even higher levels of employment in practically every transportation industry," Mrs. Robison told the conferences.

"According to our reports, women are doing a good job in many transportation occupations which in peacetime have been considered "men's jobs."

"While one railroad complained of the low efficiency of some women used as laborers, the same company reported enthusiastically on the good work of other women who were wives of railroad workers and who developed into competent shop helpers.

"The Pennsylvania Railroad, particularly, has made great strides in the employment of women. The number of occupations in which women were employed on this railroad doubled from September, 1942, to January, 1943, and the number of women in non-clerical jobs also increased very substantially. Railroads also have reported increased use of women in roundhouses, shops, and stores as well as the use of women in other types of jobs.

Mrs. Robison made the following additional points - - - - -

1. Even if no expansion in transportation employment occurs, employers are facing a replacement problem of a very large proportions, and constant recruitment will be necessary if only to keep at current employment levels.

2. Labor requirements of for-hire transportation will necessitate an increase in employment by an additional 175,000 from January through October, 1943.

3. The need for women is greater in some areas than in others and the need is especially great in areas of concentrated war production where local facilities have become overtaxed as to housing, education, transportation, and other services and where it is most important to avoid further congestion and further shifting of personnel.

4. Job opportunities for women are greater in some branches of transportation than in others, but a great many opportunities for employment of women have yet to be explored in terms of suitability of employment, efficiency of female labor and problems to be solved in recruitment, training and adjustment of women to new fields and skills.

Miss Nienburg

WPB

WOMENS ADVISORY COMMITTEE
Office of Labor Production
War Production Board (11)

Hearing: July 12, 1943

SUBJECT: HEALTH

The recommendations that came out of the discussion were:

1. That a suitable physical examination be given every employee insofar as possible.

   a. That this examination be used to place workers to the best advantage and not to exclude workers.
   b. That the results of the physical examination be made known to the employee.
   c. That regular medical care and supervision be required for persons with communicable disease.
   d. That there be periodic follow-up examinations as far as possible.
   e. That pregnant women be allowed to work if it is advisable physically for them to do so.

2. That a sub-committee be appointed to make a complete survey of existing medical personnel and facilities and make recommendations about how to make the best use of these. For instance, two suggestions thrown out were:

   a. To make available to an employer the results of a physical examination done by another company.
   b. To have a medical examining board with one physician from industry, one from labor and one from the medical profession at large, which might act as a clearance agency.

Clearance Agency:

That the first aid facilities and personnel of all plants be brought to the standard advocated by the Bureau of Industrial Hygiene of the Department of Health.

That a program of health education be developed.

That a sub-committee of this group work closely with already established community groups on recreation.

That a sub-committee be appointed to make recommendations to meet the problems of food.

WPB

WOMEN'S ADVISORY COMMITTEE
Office of Labor Production
War Production Board (11)

Hearing: July 19, 1943

SUBJECT: HOME AND PERSONAL RESPONSIBILITIES

The purpose of the hearing was to define the special problems of women war workers in carrying on their home responsibilities.

RECOMMENDATIONS

I That the WMC

a) Utilize local labor and minimize in-migration.
b) Enforce the Government order against discrimination, both of minorities and older workers, who are still potential in the local labor supply.
c) Actually tighten up on in-migrants, as indicated in the President's "hold the line" order.
d) Consider shorter shifts or shorter weeks for women workers.
e) Hold essential workers in service industries, and consider methods of making this possible.
f) Tie in with FHA on provisions for housing in-migrants workers.
(pg. 16-17-18-19-21-22-23-26-27-29-33-34-35-36-69-70)

II Neighborhood War Clubs consider extension of their services to assist women war workers with their home responsibilities.

a) Laundry service
b) Junior Service Corps
c) Visiting housekeepers for sick children

III Community War Services Division, of Federal Security Administration, to consider the whole area of the possibility of a workable plan for prepared meals for war workers.

a) Community kitchens in neighborhood restaurants or schools
b) Government restaurants in small neighborhood restaurants now not operating.
c) Over-all cooperative plan with OPA for adequate supplies of food for this service. (pg. 20-31)
d) Use of other community outlets for prepared food distribution, like American Red Cross mobile units, churches, etc. (pg. 16-21)

IV Recommendation that trade and professional associations study plans to meet the needs of women war workers.

a) Laundry Association
b) Retail Merchants Association
c) Wayne County Medical Society
d) Visiting Nurses Association

V Public Schools and Children's War Service

a) Extend the public child care centers to meet the needs of women war workers, both as to hours of service and to geographic difficulties.

b) Adjust and control fees for child care, so that it is within the reach of women workers.

c) Promote community education to increase the use of child care centers.

VI The Committee recommended the establishment of two subcommittees for further study of the problem of laundry, food preparation, shopping, and their relationship to the labor supply. (Pg. 34, 35, 36, 37, 64, 65)

The discussants developed the following special problem areas in connection with these recommendations:

I LAUNDRY SERVICE (pg. 11-33-34)

a) Low wages and the possibility of wage adjustments to compete with other wage rates in Detroit.

b) Definite action on the part of WMC to hold laundry workers, who have now been declared "essential".

c) Recommendation that Laundry Association consider plans for extension of their services on a priority basis; delivery and collection of bills facilitated for war workers.

d) The establishment of service stations by Neighborhood War Clubs for receiving laundry packages, paying for them, etc., by special arrangement with women war workers. (pg. 66-67-68)

(Each of the above headings indicates the suggestions of this committee for solutions to the problem.)

II FOOD PREPARATION (pg. 12-13-76)

The committee agreed that one of the great hardships for women war workers was the preparation of food for their families after a long day's work. The following possible solutions for alleviation of this hardship were suggested:

a) Schools where equipment for food preparation exists. (pg. 30-31)

b) Restaurants and food processers -- extension of pre-prepared meals for sale.

c) Government restaurants or kitchens (pg. 32)

d) Churches (pg. 28-30)

e) Industrial cafeterias -- were considered as unlikely to be able to extend additional services in this field.

f) Cooperation between any or all of the above possible agencies and OPA to insure adequate supplies.

III SHOPPING (pg. 29)

The difficulties of securing necessities, like food and clothing, for women war workers, working 6 days a week, 8 hours a day, were discussed. The following suggestions for simplifying them were made:

a) Shopping certificates, which would insure women war workers priorities, especially in food markets.

b) Neighborhood War Clubs -- possible cooperative shopping services, or the organization of a Junior Service Corps to shop for war workers.

c) Extension of banking hours (pg. 44)

d) Staggered retail store hours, for instance: food shops opening three days a week at noon and remaining open later in the evening.

e) Recommendation that the Retail Merchants Association, in cooperation with OPA, consider the possible changes in service which might facilitate shopping for war workers.

IV CHILD CARE

Child Care, both adequate and adjusted to the needs of war workers should be provided.

a) Extension of public school child care centers to cover geographic areas more widely and meet the hours of working mothers.

b) Extension of the use of private homes offering care to young children.

c) Neighborhood War Clubs to offer "convoy" service to younger children in nursery centers (possibly through a Junior Service Corps)

c) Children's War Service to extend information about available child care to more parents.

V HEALTH AND NURSING SERVICE (pg. 13-14-24-38-39-40-41)

The committee agreed that sickness in the workers' families, as well as their own sickness, often caused irregular attendance at work. Agreed that the community agencies should consider the extension of services that would be more adequate and more easily available.

a) Visiting Nurses Association
b) Wayne County Medical Society
c) Neighborhood War Clubs possible cooperative arrangement for home care for sick children, etc.

VI LABOR SUPPLY AND RECRUITMENT

Each of the problem areas discussed in this group returned, inevitably, to the Detroit labor shortage. It was suggested that the following agencies clarify their policies with regard to
1) Actual recruitment of potential local labor supply.
2) The recruitment of in-migrant labor.
3) The use of part-time labor.

Agencies --
a) United States Employment Service
b) War Man Power Commission
c) Automotive Council for War Production, and other manufacturers' associations employing war workers.

In general, this discussion went back to SHORTAGES - the shortages of labor, of housing, and of available services follow through the entire hearing. The suggestions of the committee were directed toward existing community resources, where solutions might be found, and their extension or the creation of new facilities to help women war workers carry both their home responsibilities and their full employment schedules.

There was a difference of opinion in the committee as to whether the community should plan to offer the services herein discussed, or whether it should wait for requests for these services to be made by labor and management, thus trying to meet only the needs expressed by war workers.

(pg. 45-46-47-48-51-52-53-58-59-60-61)

Respectfully submitted,

(Mrs) Caroline L. Burlingame

WPB

WOMEN'S ADVISORY COMMITTEE
Office of Labor Production
War Production Board

Hearing: July 19 1943

SUBJECT: SAFETY

The discussion of safety for women workers centered around two basic questions: (1) To what extent is the safety of women workers provided for in a sound, well-enforced program of plant safety?
and (2) What special safety provisions should be made for women employees?

Recommendations 1 through 4 concern the first of these questions; the answer in general is: A good safety program will take women workers in its stride; safety for women means safety for men, and vice versa.

Remaining recommendations concern the second point of emphasis, special safety provisions needed for women employees. Three needs stood out: protective clothing, safety education, and job analysis in the placement of women workers. Since the aim of the hearing was to provide useful suggestions for plants employing women workers, recommendations on these matters (#5 - #13) are as detailed as the problems themselves.

RECOMMENDATIONS

I THE GENERAL SAFETY PROGRAM

1. A well-organized, effective safety program is the first condition for safety, of women as well as men employees. Such programs need to be established wherever they do not now exist.

2. Obedience to safety regulations should be made a condition of employment for women and men alike. Women war workers, newcomers to industry, readily fall in with rules laid down at the time of hiring and consistently enforced on the job.

3. Women should be members of Plant Safety Committees where women are employed in numbers. Responsibility for enforcing safety regulations rests with management, but cooperation of the employees themselves, including women, is needed for an effective program.

4. Planning in advance for the safety of women workers is necessary even where an established program is in effect. Although not necessarily more hazardous employees than men, women are largely newcomers to industry and besides, present some special problems.

II SPECIAL SAFETY PROVISIONS NEEDED FOR WOMEN WORKERS

Protective Clothing

5. The wearing of safety clothing — headgear covering the hair, safety shoes, suitable over-all garments or uniform- should be stipulated as a condition of employment at the time of hiring, regardless of work. Attempts to impose safety clothing on women after habits are established are sure to be difficult.

6. Enforcement should be strict and impartial. Women failing to wear regulation clothing should be censured, sent home, even dismissed. At the same time, an unremitting campaign of education should be conducted through the plant to make women conscious of the physical hazards of exposed hair, toeless shoes, and loose clothing.

7. Safety clothing should be chosed initially by women and should be as attractive and well-fitting as possible. But once adopted, no exceptions should be allowed.

8. Uniform clothing is recommended for all women on all jobs. Whether such clothing should be provided by management or by women employees themselves was a question on which agreement was not reached. (see following pages for fuller discussion)

Safety Education

9. Education in safety habits and practices should be part of the induction process. Women who are new to factory work will be cautious and receptive to instruction but, unless told reasons for specific safety regulations, will soon disregard them.

Job Analysis

10. In placing women on the job, a process of job analysis is necessary to secure, apart from other considerations, conditions of safety.

11. Ventilation should be carefully checked, since women are known to be more sensitive to respiratory disturbances than men.

12. Wherever lifting of heavy weights is involved, a man or a mechanical device should be provided for that part of the work.

13. The emotional and psychological make-up of women needs to be considered in placing them on their jobs.

WHY THESE RECOMMENDATIONS?

Opinions and arguments expressed at the hearing, on which the above recommendations are based, are summarized in the following excerpts from the record:

1. Well-organized, effective safety program is the first condition for safety of women as well as men employees. Such programs need to be established wherever they do not now exist.

"Where safety permeates throughout the whole plant the women absorb it as well as the men, and the experience reflects in the accidents to women just the same as to the men." (Moore, page 44)

"If the program is established it is going to be fine. If it is not established, you are right in the soup; because women will fall into line if the thing is all laid out, and if it is not you will have trouble." (Peters, page 12)

"We have hundreds and hundreds of small plants that have no definite safety program set up and no safety engineer; and if we can carry a recommendation to them that if they are going to hire women they should realize what their problem is, we will have added considerably." (Olson, page 11)

2. Obedience to safety regulations should be made a condition of employment for women and men alike. Women war-workers, newcomers to industry, readily fall in with rules laid down at the time of hiring and consistently enforced on the job.

"Safety should be a condition of employment...it is side by side with production....because a man is not doing any work if he is in a hospital with a broken arm...." (Moore, page 64)

"Where management is organized and, as soon as they start hiring women, they enforce their rules and instruct them on what clothing and what protective equipment they should use ... it is easier to adapt them to the program." (Olson, page 6)

"There are big companies in Detroit where the rules are not carried out that are laid down and there is no discipline." (Brandes, page 20)

"We have less trouble, perhaps, training and educating our women than we do the men.....Men...through their familiarity (with manufacturing plants) have bred a certain amount of contempt for safety, whereas women are more or less new to a great many plants." (Moore, page 7)

Note: The new compensation law is expected to encourage safety programs in the smaller shops. (Moore and Phillips, pp. 58-59; Moore, pp. 16-18)

3. Women should be members of Plant Safety Committees where women are employed in numbers. Responsibility for enforcing safety regulations rests with management, but cooperation of the employees themselves, including women, is needed for an effective program.

"I am much in favor of women on safety committees where you have a large number of women employed. I find it has worked out very well.... they realized the importance of their problems." (Olson, page 62)

"...if you have the union shop committee behind you, as far as safety is concerned, you have really got something.....They have methods of their own that are very effective." (Moore, page 66)

"You cannot take responsibility of safety away from where it properly belongs, and that is the supervisor.....If top management is sold on safety that is the first requisite of a good safety program.....Then safety is sold right on down the line to the workman himself...." (Moore, pp. 62-63)

"You cannot do anything unless you have the backing of the management". (Tarillion, page 15)

4. Planning in advance for the safety of women workers is necessary even where an established safety program is in effect. Although not necessarily more hazardous employees than men, women are largely newcomers to industry and besides, present some special problems.

"I find that a great deal of it (injury to women) is due to management's failure to prepare before they hired women. They let that part of the safety program go...until they have employed a larger number and then they try to educate them as to protective clothing, shoes, goggles, etc. The problems become large and are difficult to enforce." (Olson, page 5)

"I just completed a study of 18 months on that very problem (frequency and severity of women's accidents) and our figures show less than one percent difference .... It has been our experience that women are not more hazardous than men." (Moore, pp. 36-37) *

PROTECTIVE CLOTHING

5. The wearing of safety clothing, headgear covering the hair, safety shoes, suitable over-all garments or uniform, should be stipulated as a condition of employment, at the time of hiring. Attempts to impose safety clothing on women after habits are established are sure to be difficult.

"I have found, from experience, that after hiring a number of women in a plant they then start to put uniforms on them, and they have a mass group opposed to it...If you start in the employment office of these small plants I think it would make it a great deal easier." (Olson, p.11-12)

*For more discussion on women's accident rates and the lack of conclusive figures, see full discussion on pages: 33-37, 38-43, 60.

"Mr. Olson is right....We have had that experience in putting uniforms on them and they are not....in uniform." (Peters, p. 12)

6. Women failing to wear the regulation clothing should be censured, sent home, even dismissed. An education program, telling the women on the need for protective clothing, should be constantly conducted.

"If they will only make a ruling that if anyone comes in there and disregards the rules, they will send them home...." (Tarillion, page 15)

"They do not like to use that method, because these people may get plenty sore and they may go elsewhere to get a job...You have to teach them." (Phillips, page 28)

"This girl must wear this clothing or she must go home." (Olson, p. 30)

"The thing to have done right then was to have removed those women from their machines, taken them into the Personnel Office and really had some discipline on the matter." (Brandes, page 20)

".....(for a third complaint) there is an immediate discharge...However, I think what is required is education of foremen..."(Peters, p.22)

7. Safety clothing should be chosen initially by women and should be as attractive and well-fitting as possible. But once adopted, no exceptions should be allowed.

"All girls who work in our plant....whether inspectors or bench workers or whatever...wear the caps on the basis of what is fair for one is fair for the other one..." (Moore, pp. 18-19)

"We let them pick their own hats and coveralls." (Moore, page 19)

"Why not get some top notch clothes designer to make a costume..." "Bryant, p. 23)

"They have! These safety engineers have gotten together. Sax Fifth Avenue has them....made by some famous hat designer...."(Moore, p. 23)

"....I doubt very much if you will force them to wear anything that makes them look unattractive. They would rather quit." (Terech, p. 24)

"I have 15 varieties of caps ...I said, "Pick out one. They are not here for glamour. You are here to work." But no, they want their hair to show." (Tarillion, p. 25)

8. Uniform clothing is recommended for all women on all jobs. Whether such clothing should be provided by management or by women employees themselves was a question on which agreement was not reached.

"....Unless it is given to them, as at Cadillac, where they buy their own they want to buy the things they like and that are different from someone else." (Peters, page 71).

"It has been said several times here that if everyone is wearing the same kind of clothing, it is much easier to enforce." "That is right." (Comfort, Olson, page 61)

"Is it fair for (women) to have any added benefits from employment?.... as far as their own clothing, they should buy that." (Peters, p. 72-73) "Right, you do not buy clothing for the men." (Olson, page 73)

"....It is simpler(for the management) to buy the uniforms and make sure they are safe..." (Moore, p 73)

"I would favor that as a condition of employment they wear safety clothing, which should be provided for convenience." (Cline, p 73)

"....women themselves first brought safety clothing into the plant." (Brandes p 75)

"....(in many plants) the employees rent the garment, but the management places it (after laundering) at the disposal of the employee." (Harris p. 76)

SAFETY EDUCATION

9. Education in safety habits and practices should be part of the induction process. Women who are new to factory work will be cautious and receptive to instruction but, unless told reasons for specific safety regulations, will soon disregard them.

"We break women in on a job where it is impossible for them to get hurt.... On this job where it is comparatively safe they absorbe factory routines... then they are gradually upgraded. So a system of proper placement, proper education right on through the line, will reduce accidents...." (Moore, page 45)

"I find that the women that are taught in these schools (how to run machines) .... for a period of some weeks, their accidents are very low; but the women that just come in....the first day they are on the job they get hurt." (Tarillion, p. 44)

"....at first they are going to be a little fearful of the machine and a little more cautious in its operation, and consequently they are going to have fewer accidents....women, just like men, finally achieve a familiarity with the machine and, consequently, a contempt for it, and that attitude always brings accidents." (Peters, Moore, page 46.)

JOB ANALYSIS

10. In placing women on the job, a process of job-analysis is necessary to secure, apart from other considerations, conditions of safety.

"I think the answer...is purely job analysis, tailoring the job for the woman...determining what the qualities of the operator should be and then picking the person for that job." (Moore, page 48)

" ... job analysis and placement are the two fundamental problems at the basis ... " (Cline, pp. 51-52)

"If men are not available (women) are going to have to take the heavier jobs and it is necessary to analyze the jobs for women in the first place and put them at points where they can be of most service." (Phillips p. 54)

11. Ventilation should be carefully conducted since women are known to be more sensitive to respiratory disturbances than men.

"They should put more safety devices on the machinery ... all that steel dust that is supposed to blow out comes right back in again ... not only on the people working at the machines, but throughout the whole plant." (Terech p. 69-70)

"We are of the opinion partly because of the Medical Association, that women are more susceptible to inhalations of dust, gas and fumes because of their physical make up than men are. Therefore we do recommend better ventilation ... where dust, gases, and especially for lead and derivatives of gasoline ... more so for females than for men." (Phillips p. 70)

12 Wherever lifting of heavy weights is involved, a man or a mechanical device should be provided for that part of the work.

"A lot of them lift without realizing ... it looks small and they just go ahead and lift it." (Terech, page 54)

"This business of reach, is another factor ... two men who have been there longer than some of the women ... just sit all day at a bench all day, while we have to reach ... " (Terech page 56)

"We could counterbalance that wrench for her so that she will be able to handle that job just as well as a man can. (Hoists) are all electric, a woman can handle that as easily as a man by pushing a button." (Moore, p. 48)

13 The emotional and psychological make up of women needs to be considered in placing them on their jobs.

"They have been used to their home to taking care of about ten things at the same time. Now if you place a woman of that type on a routine job that demands concentration, she will have her mind wandering all over." (Terech p. 42)

"There is not a great deal of difference between wiring a radio and crocheting or hooking a rug... There are just hundreds of jobs in industry that women can do more efficiently and much more safely than a man can... Proper placement of women will reduce your accidents..." (Moore, p. 50)

"You take a highly strung woman with a good IQ and put her on too repetitive a job and she cracks up....She has a great deal to give to another type of job..." (Brandes, p. 50)

"About women talking on the job: The truth of the matter is that the faster they talked, the faster they worked, and the work did not suffer at all. Men do not do that. They sit...and never say a word to one another." (Peters, p. 53)

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7/43
OLP-WPS

WOMEN'S ADVISORY COMMITTEE

OFFICE OF LABOR PRODUCTION
WAR PRODUCTION BOARD
REGION XI
Detroit

COMMITTEE HEARINGS

July 12 - HEALTH - 9:30 A.M. - Mrs. Bledsoe, Chairman

TRANSPORTATION - 2:30 P.M. - Mrs. Bryant, Chairman

July 15 - FATIGUE - 9:30 A.M. - Mrs. Lowrie, Chairman

HOUSING - 2:30 P.M. - Miss Cline, Chairman

July 19 - HOME & PERSONAL RESPONSIBILITIES - 9:30 A.M. - Mrs. Burlingame, Chairman

SAFETY - 2:30 P.M. - Miss Comfort, Chairman

TENTATIVE OUTLINE OF QUESTIONS FOR COMMITTEE HEARING ON HEALTH --

I. Industrial Management - Employment Policies

A. Physical examination
1. Shall we give a physical examination to all workers at induction?
2. How can we make more extensive use of the findings from the physical examination in the placement process?
3. Can diagnosis be made available to workers when medical care is indicated?
4. What provisions can be made for treatment when it is needed?
5. Shall we have periodic examinations?

B. Leaves of Absence
1. The pregnant woman - how can her services be used without jeopardizing the health of mother and child?
2. How shall we handle other illnesses necessitating leaves ofabsence?

C. First Aid Facilities
1. What are adequate first aid facilities?
2. How shall we acquire them?

II. Labor Unions

A. How can unions help on this whole problem of health of women workers?
B. What medical services are unions prepared to give workers?

III. Medical Care

A. Shortage of Doctors, Nurses and Community Facilities.

1. Will new community planning be necessary if workers are to receive treatment when needed?
2. Shall we pool our doctors?
3. Is the cost of medical care prohibitive to some workers?
4. Do we need to recruit nurses and nurses' aides?
5. What of hospital facilities?

IV. Nutrition

A. Food Services
1. Is one well balanced meal available for each worker on all shifts?
2. If not, is it shortage of food or lack of facilities?
3. What adjustment in food shopping schedules do we need to make in the community to accommodate women war workers?
4. Is it desirable that there be available near the plants reasonably priced prepared foods that women workers may purchase and take home.
5. What practical information, brief and to the point, may we get to women workers that will assist them in this matter of good nutrition for themselves and their families.

V. Recreation
A. How important to total physical and mental health is recreation ?
B. What of recreation on the job?
C. Near the job?
D. In the community?

PARTICIPANTS FOR COMMITTEE HEARING ON HEALTH

Mr. Wm. N. Witheridge, Chief of the Bureau of Industrial Hygiene

Dr. Bruce Douglas, Detroit Health Commissioner

Miss Laurentine Collins - Detroit Board of Education
Department of Health & Phsyical Fitness

Dr. James E. Davis - Director, Medical Research Institute, UAW CIO

Dr. Morris Raskin - Medical Co-Ordinator, Medical Research Institute, UAW CIO

Dr. Catherine Corbeille - Private Physician

Olga Madar - Recreation Director, Local #50, UAW CIO

Mrs. Dorothy Tolley)
Mrs. Anna Pank) - women war workers

Dr. A. L. Brooks - Fisher Body Division, GMC

Mrs. Lillian Ussher - Sec. Group Work & Recreation Council of Social Agencies

Dr. Remus Robinson - colored physician

Mr. Egbert Neidig, Sec. - Metropolitan Council of Health

Mr. William Dorn - Community War Services Liaison Officer, WMC

Mr. Charles P. Alcorn - Regional Office - Food Distribution Administration

TENTATIVE OUTLINE OF QUESTIONS FOR COMMITTEE HEARING ON TRANSPORTATION

I. PRIVATE MODES OF TRANSPORTATION —

A. How will possible further curtailment in use of gasoline effect car-sharing?

B. Are private bus companies making fullest use of present equipment?

II. PUBLIC MODES OF TRANSPORTATION —

A. How can needs for new equipment be met?

B. What will be the effect of immigration on future schedules and routes?

C. Can women be used by D.S.R. as drivers, conductors and repair crews?

D. Is it feasible to place restrictions on the use of public transportation by women shoppers?

E. Are railroads servicing war workers in the greater Detroit area on short hauls to the fullest extent?

PARTICIPANTS IN COMMITTEE HEARING ON TRANSPORTATION

Mrs. Isobel Masters
N. Y. Central Station
15th Street Terminal
Detroit, Michigan

Mr. Arthur T. Mitford
Mr. J. C. Bailey
Department of Street Railways
11200 Shoemaker
Detroit, Michigan

Mr. Donald McNulty
Personnel Director
N. A. Woodwroth Company
1365 Jarvis
Ferndale, Michigan

Mr. George D. Sills
Cadillac Motor Car Company
2860 Clark Street
Detroit, Michigan

Miss Frances Tarillion - war worker
Local #174, UAW CIO
17234 Horger
Allen Park, Michigan

Mrs. Josephine Gomon
Personnel Department
Ford Motor Company
Willow Run Plant
Ypsilanti, Michigan

TENTATIVE OUTLINE OF QUESTIONS - FOR COMMITTEE HEARING ON FATIGUE

1. Effects of the six day week, eight hour day, regular rest periods?

2. Proper job placement.

3. Working conditions —

   lighting
   seating
   ventilation
   placement of machinery, stock
   restrooms
   eating facilities

4. Effect of transportation difficulties

5. Effect of home responsibilities.

6. Planned absences

7. Cooperative devices

   a. Supervisory techniques
   b. Participation by workers on a non-discriminatory basis in the making of policies.(Labor-Management Committees, etc.)
   c. Use of suggestions from workers.
   d. Relationship of individual job to the war.

PARTICIPANTS FOR COMMITTEE HEARING ON FATIGUE

Mr. Victor Reuther
UAW CIO International Office
411 W. Milwaukee
Detroit, Michigan

Miss Mary Ann Loeser
UAW CIO International Office
411 W. Milwaukee
Detroit, Michigan

Mr. C. E. Weiss
Packard Motor Company
1580 E. Grand Boulevard
Detroit, Michigan

Mrs. Josephine Gomon
Willow Run plant
Ypsilanti, Michigan

Mr. Randall Dahl
Bureau of Labor Statistics
U. S. Department of Labor
David Stott Building
Detroit, Michigan

J. Webster, Asst. Personnel Director
Mrs. A. Williams, Chief Counsellor
Hudson Motor Car Company
12601 E. Jefferson
Detroit, Michigan

Mr. Anthony Probe
Michigan CIO Council
303 Hofmann Building
Detroit, Michigan

Miss Ruth Peters, Co-Ordinator
Vickers, Inc.
1400 Oakman Boulevard
Detroit, Michigan

Miss Elinor Schaffle
Education Department, UAW CIO
231 W. Gd. Boulevard
Detroit, Michigan

TENTATIVE OUTLINE OF QUESTIONS FOR COMMITTEE HEARING ON HOUSING

I. What data in the area are available showing the relationship of housing to productive efficiency, attendance, health, etc.?

II. What programs should be developed in the next three to six months, with reference to —

a. Actual use of unoccupied or vacant dwellings
b. Sale of private homes
c. Conversion of homes
d. Transferring workers in terms of location of employment
e. Building of dwelling units by private industry
f. Building of dwelling units by public agencies.

III. What special problems seem to be significant?

a. Housing for single persons, families with children, Negroes, immigrants, "WAR WORKERS"
b. Health (overcrowding, trailers, sanitation)
c. Legislation (public housing, zoning, planning, etc.)

PARTICIPANTS FOR COMMITTEE HEARING ON HOUSING

Mr. Otis May
City Planning Commission
601 Water Board Building
Detroit, Michigan

Mr. Horace White
Detroit Housing Commission
Water Board Building
Detroit, Michigan

Mr. Raymond Foley
Federal Housing Administration
147 National Bank Bldg.
Detroit, Michigan

Mrs. Josephine Gomon
Personnel Dept.
Willow Run Plant
Ypsilanti, Michigan

Mr. Anthony Probe
Michigan CIO Council
803 Hofmann Bldg.
Detroit, Michigan

Mr. Sherwood Reeder
Federal Public Housing Admin.
Barlum Tower
Detroit, Michigan

Mr. LeBron Simmons, Attorney
585 Gratiot Avenue
Detroit, Michigan

Mrs. John McCaig
Citizens' Housing & Planning Council
Penobscot Building
Detroit, Michigan

Miss Marion Moyer
Department of Public Welfare
Detroit, Michigan

Mr. William Dorn
War Manpower Commission
1164 Penobscot Bldg.
Detroit, Michigan

2 women war workers

TENTATIVE OUTLINE OF QUESTIONS FOR COMMITTEE HEARING ON

HOME AND PERSONAL RESPONSIBILITIES

1. How many ordinary duties can a woman worker be expected to carry in addition to her work?

2. Of what responsibilities can the woman worker be relieved — laundry? dry cleaning? cooking? child care? shopping? home maintenance?

3. By whom and how should these responsibilities be assumed? e.g. -

   laundry — priorities, pickup, delivery, etc.
   cooking — communal, school, industrial, commercial
   child care — public programs, private home care
   shopping — priority certificates, buyers certificates, store hours
   home maintenance and upkeep — homemakers' service, neighborhood projects
   home nursing and minor illnesses — public programs, neighborhood volunteers.

4. Can the Office of Price Administration simplify rationing regulations with reference to special problems?

PARTICIPANTS FOR COMMITTEE HEARING ON

HOME AND PERSONAL RESPONSIBILITIES

Mrs. Irene Murphy, Secy.
Committee for Day Care of Children
Wayne County Defense Council
51 West Warren Avenue
Detroit, Michigan

Mrs. John Failing
Neighborhood War Clubs
2631 Woodward Avenue
Detroit, Michigan

Mrs. Katherine Calles, President
CIO auxiliary
281 W. Grand Boulevard
Detroit, Michigan

Miss Sheridan, Dietitian
Board of Education
801 American Radiator Bldg.
Detroit, Michigan

Mrs. Verne Corrigan
AFL Auxiliary
82 West Montcalm
Detroit, Michigan

Mrs. Shirley Williams
Miss Darling
Sanders Baking Company
100 Oakman Boulevard
Highland Park, Michigan

Mr. Cyril Lewis
Dy-Dee Wash Company
8066 Fullerton
Detroit, Michigan

Miss Milenka Herc
Miss Lucille Harmon
Visiting Nurses Association
51 West Warren Avenue
Detroit, Michigan

Mr. Fitzgerald, Director
Office of Price Administration
600 Griswold Avenue
Detroit, Michigan

Mrs. Marcia Ward
Visiting Housekeepers' Assoc.
51 West Warren Avenue
Detroit, Michigan

Mr. Charles Boyd
Retail Merchants Association
320 W. Lafayette
Detroit, Michigan

Mrs. C. R. Mueller, President
Consumers' League
222 Louise Street
Highland Park, Michigan

Mr. Jones, Cafeteria Manager
Vickers, Inc.
8 Mile Road & Hubbell
Detroit, Michigan

Mrs. Ruth Higgins - working mother

TENTATIVE OUTLINE OF QUESTIONS FOR COMMITTEE HEARING ON SAFETY

1. What is the wartime trend in women's accidents in the Detroit area?

   a. What are current figures concerning frequency and severity?

2. Education —

   Can safety instruction on a non-productive basis be provided for employees new to the job so that the speed factor will not increase hazards?

3. Safety Clothing —

   a. How can safety practices in clothing, e.g. headgear, work garments, work shoes be established in accordance with need of specific jobs?
   b. How can clothing rules best be presented and enforced?

4. What factors need to be considered in engineering jobs for women to reduce accident hazards?

   a. Height
   b. Reach
   c. Size of hands.

PARTICIPANTS FOR COMMITTEE HEARING ON SAFETY

Mr. Olson
Michigan Mutual Liability Co.
163 Madison Avenue
Detroit, Michigan

Mr. Phillips, Chief
Inspection Division
State Department of Labor & Industry
Transportation Bldg.
Detroit, Michigan

Mrs. Anne Brandes
Representing War Manpower Commission

Mr. Jerry Moore, Safety Director
Cadillac Motor Company
2860 Clark Street
Detroit, Michigan

Mr. Wm. Smith, Safety Engineer
Ford Motor Company
Dearborn, Michigan

Mr. Bernard Harris, Business Agent
AFL Laundry Union Workers
82 W. Montcalm
Detroit, Michigan

Miss Frances Tarillion)
Miss Anne Terach) - UAW CIO War Workers

Miss Ruth Peters, Co-Ordinator
Vickers, Inc.
1400 Oakman Boulevard
Detroit, Michigan

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WAR MANPOWER COMMISSION

WOMEN'S ADVISORY COMMITTEE

TENTATIVE AGENDA

January 13 and 14, 1943 - Room 5546 - 10:00 a.m.

WOMEN'S BUREAU
JAN
DEPARTMENT OF LABOR

1. Executive Session.

2. Presentation and discussion of the T&I program with emphasis upon utilization of women in training programs.

3. Discussion of the utilization of women in professional and technical fields.

4. Report of sub-committee on Public Relations.

5. Report of sub-committee on Agriculture.

6. Progress report on use of community facility funds.

12/3/42

MOTION ADOPTED BY THE WOMEN'S ADVISORY COMMITTEE

December 3, 1942

The Women's Advisory Committee adopted the following motion:

THAT, the Women's Advisory Committee concur in support of the plan for enrollment of women on a local basis where area committees have agreed that such enrollment is essential.

December 3, 1942

MOTION REQUESTING REGULAR REPORTS FROM REGIONAL OFFICES OF WAR MANPOWER COMMISSION

The Women's Advisory Committee moved and adopted the following motion:

THAT, the Regional Directors of the War Manpower Commission are hereby requested to submit regular reports of their activities to the Women's Advisory Committee of the War Manpower Commission in order that they may have a complete picture of the program with respect to the areas from which the respective members come.

important related conditions would also have to be considered, it was believed. Women cannot be expected to volunteer for industrial service in large numbers, it was said, until daycare nurseries, laundries, community kitchens, and other essential services that will enable them to maintain their homes and care for their families have been established. These, some of the committee believed, will have to precede any far-reaching recruitment program.

Other opinions expressed by committee members swept aside the voluntary principle itself as basically weak and ineffectual. There is no time now for slow experimentation with voluntary service, these members said. Some type of compulsion - at least country-wide compulsory registration, in readiness for later needs - is justified by the emergency of the moment. The enactment of compulsory service legislation would bring home to the nation as nothing else would the seriousness of the present situation, it was said.

A sharp difference of opinion with this view was expressed by some committee members. Military and draft is vastly different from the conscription of labor for profit production, it was pointed out. Before we undertake the nationwide conscription of labor it was thought that certain things should be definitely ascertained; i.e. that there is an over-all organization of industry in terms of essentiality and an integration toward production for winning the war and not for business as usual; that non-essential production is drastically curtailed; that there is no hoarding of labor and no needless padding of payrolls as there may be in some "cost plus" war industries; that full and complete utilization of the available labor supply of women and minority groups is made before any conscription is undertaken. It was stated that should the conscription of labor become essential it is imperative that the program be well-timed.

The subject of compulsory national service that the discussion had led into was agreed to be of such consequence that the committee decided to make it the entire agenda for the next meeting.

NATIONAL SERVICE LEGISLATION

REPORT OF THE MANAGEMENT AND LABOR SUBCOMMITTEE ON LEGISLATION

Mr. Harper outlined for the Women's Advisory Committee the background of thinking and action on possible National Service legislation, and summarized the conclusions recently submitted to the Management-Labor Policy Committee by its subcommittee that has been working with the staff of WMC on this special aspect of the manpower problem. In the opinion of the subcommittee, Mr. Harper said, no legislation at this time is necessary and no specific legislation should be supported. Aggressive action to put more vigor into the present voluntary program and to use indirect sanctions as a means of forcing compliance with WMC policies was recommended.

Four National Service bills have been introduced in the Senate, Mr. Harper said, none of which, in the opinion of the staff, have dealt adequately with the manpower problem.

WAR MANPOWER COMMISSION

WOMEN'S ADVISORY COMMITTEE

MINUTES OF FOURTH MEETING, DECEMBER 2, 1942

10:30 a.m. to 12:00 m. and 2:00 p.m. to 5:00 p.m.

Room 5110, Social Security Building, Washington, D. C.

Miss Margaret Hickey, Chairman

Committee Members Present
Mrs. Harris T. Baldwin
Mrs. Dorothy Bellanca
Miss Bess Bloodworth
Mrs. Maudelle Bousfield
Mrs. Saidie Orr Dunbar
Mrs. Gladys Talbott Edwards
Mrs. Lowell Hobart
Miss Jennie Matyas
Mrs. Blanche M. Ralston

War Manpower Staff Present
Mr. Paul V. McNutt
Miss Lillian Alexander
Mr. Phil Broughton
Mrs. Anne T. Brown
Mr. Max Chambers
Miss Mary Curran
Dr. Edward Elliott
Mrs. May T. Evans
Dean Bernard Gavit
Miss Helen Greenblatt
Mrs. Eva Hansl
Mrs. Fowler V. Harper
Mr. George Jaqua
Mrs. Edith M. Keyes
Miss Bernice Lotwin
Mrs. Marjorie Marshall
Miss Thelma McKelvey
Miss Rhea Radin
Mr. Alvin Roseman
Mrs. Rowena Rommel
Mr. Raymond Rubicam
Miss Marjorie G. Russell
Miss Sara Southall
Mr. Clarence Weiner

Present by Invitation
Mrs. Franklin D. Roosevelt

Federal Security Staff Present
Mr. Maurice Collins
Capt. Watson B. Miller
Miss Mary Switzer
Mr. Jack Tate
Mrs. Ellen Woodward

Labor Department Staff Present
Miss Mary Anderson
Miss Kathryn Lenroot

USES Staff Present
Miss Helen Ringe

SUMMARY
WRITER: MG, Minutes and Reports Section, OEM

PURPOSE OF THE MEETING

In the morning session Mrs. Roosevelt addressed the group on the British womanpower program. In the afternoon Dr. Elliott outlined the work of the Technical and Professional Division, and certain problems of training and placing women were discussed by the committee.

CONSIDERATION OF THE BRITISH WOMANPOWER PROGRAM

Mr. McNutt introduced Mrs. Roosevelt, who spoke to the committee on her observations of British women in the war program. Out of the immediacy of their danger, the British have had to conscript women and to use them in many ways that may never be necessary in the United States, Mrs. Roosevelt said. Our problem is a very different one, she pointed out. But she believed that much may be learned from the British experience and that many of the procedures that have been worked out there may be adapted to the situation in the United States. She spoke particularly of the completeness with which the British have discarded their prejudices against women workers. Everywhere in England she saw women at work, many of them on highly skilled industrial production jobs that are ordinarily held only by men. The age-old fight for equal pay is still going on, but the principle is being recognized more and more, and she anticipated a considerable movement toward its fulfillment before the war is over. Above all, the draft has enabled the British to find out where the skills and the interests and abilities indicating potential skills are. They know what the needs are and what the supply is. In this respect they are better off than we are, Mrs. Roosevelt believed.

The British plan of conscription allows women to make a choice of the auxiliary services, the land army, or factory work and also attempts to give them some choice of work within the service selected, Mrs. Roosevelt said. Women between the ages of 18 and 45 are drafted, and nearly all women over 45 are doing work of some kind, frequently on a part-time basis, outside the draft. She described some of the provisions that are being made to use part-time workers in industry.

In the plants, Mrs. Roosevelt said, the women are working on 10 and 11-hour shifts. There is a feeling of obligation to produce, but the plants do have the problem of absenteeism, principally because the work at home accumulates and the women have to stay home to do it. The labor turnover is slight, however, for the workers are practically drafted. She described the labor and management committees that have been set up in every plant as regular permanent committees to listen to recommendations or complaints. Women, as well as men, sit on these committees to recommend how things should be done. The committees meet once a week, and every suggestion that is made is given consideration. The supervision in the plants is good. A new girl is always put on with an old one, who watches her work closely.

Mrs. Roosevelt also described the work of the Land Army. These workers get all the benefits of factory workers, such as health benefits and unemployment insurance, and they are assured a certain fixed amount of pay, over the cost of living.

Nowhere in England are women with small children urged to go into industry, Mrs. Roosevelt said. But some of them must work. Care for the small children of working mothers is provided through Government financed nurseries of two types, resident nurseries and day nurseries. Mrs. Roosevelt described the nurseries that she had visited as very simple but efficiently run. The children looked well cared for and healthy. For the convenience of the mothers, the day nurseries are placed close to a bus terminal in the neighborhood in which the workers live. They are not located near the plants because of the greater danger of bombing there. Each nursery is under the supervision of a doctor and is headed by a trained nurse. Very young girls are used as aides. The head people are always paid persons, but as much volunteer assistance as possible is used. Both paid and volunteer workers are under Government direction. The Government is trying to educate mothers to use these nurseries, rather than leave their children with someone at home or with neighbors, because of the better food and care and the greater safety in bombings that can be provided.

Mrs. Roosevelt was asked what measures the Government has taken to supervise and protect the older children who are working and whether any attempt is being made to supplement their education. The children leave school at 14, she said, and nothing is done by the Government for their education after that. But the communities themselves try to keep some kind of entertainment in the schools after school hours to draw these young people back.

The committee also asked what community services have been established to help women who have gone to work. Not very much has been done, Mrs. Roosevelt said, in the ordinary organization of the community except for the establishment of community restaurants, which are excellent.

Mrs. Roosevelt described a number of uses to which mobile canteen service is put in everyday life, particularly in places where permanent feeding arrangements cannot be set up. Every factory runs a canteen to provide a hot noonday and midnight lunch for workers, and every school child in Great Britain gets a hot school lunch, cooked by the Women's Voluntary Services. These volunteers also provide canteen service to men and women in the field at noon. Great Britain has had to do all of these things, which may never be needed in the United States, Mrs. Roosevelt said.

In reply to a question about health conditions, Mrs. Roosevelt said that one of the miracles is how epidemics have not started in the shelters. But health conditions are good, and there has been no major epidemic. For one thing, although the food is dull, most people are better fed than they have ever been before. Every chold gets a pint of milk a day, as well as a hot school lunch. Greater resistance to disease, she believes, has been built up through the provision of better balanced diets. Then, too, the bombings have wiped out many of the crowded slum areas, and the people have been moved into areas where living conditions are better. The plan of billeting gives a check also on the number of people living in each place.

Mrs. Roosevelt pointed out one thing that has been badly done in the British program. Proper medical examinations have not been given before induction into any of the services. No examination of men or women has been made for social diseases, and the incidence of social diseases has gone up 57 percent in the past year. Mrs. Roosevelt believed that there is a greater conception of the need for such care in the United States and a greater willingness to face the realities of this problem.

Members of the committee questioned Mrs. Roosevelt on the work of the advisory committees that work with the Government on problems of workers. She had not sat in on any of their meetings, she said, but she did know that the organization of the Ministries takes women into consideration, and that in almost every Ministry the second person is a woman. The responsibility of women in these things has made a difference in the position of women, she said. There is enormous interest among the British people in postwar planning, Mrs. Roosevelt said.

DIVISION OF PROFESSIONAL AND TECHNICAL EMPLOYMENT AND TRAINING

Dr. Elliott described the Division of Professional and Technical Employment and Training as comprising various units, among them the Procurement and Assignment Service; the National Roster of Scientific and Specialized Personnel; the Engineering, Science, Management, and War Training Program; and the College and University Student Program. He discussed the work of each unit in relation to the war effort, and particularly pointed out the place of women in the total program.

The Procurement and Assignment Service, Dr. Elliott said, was set up first for allotting physicians and surgeons to the Army. It is now more important for its work of conserving medical and dental service for civilians.

The National Roster is designed to secure registration and pertinent professional information on all the scientific and specialized personnel of the country. The roster, which was initiated before the war, lists the names of half a million American scientists and other specialists, in addition to the list of 175,000 physicians. Dr. Elliott spoke also of a proposed special register of women who have had college training and some experience in scientific work. These women form a considerable pool of potential scientific ability. With supplementary instruction, many of them will be useful in meeting the various needs for scientific workers.

Under the Engineering and Science Program, nearly half a million persons have had short or long periods of instruction that have been of great value in the war effort, Dr. Elliott said. The program has had an appropriation of 30 million dollars this year, and 40 million dollars has been requested for the work of the unit for the coming year. Some 181 institutions are operating under the plan, and some 3,000 different courses are offered. The cooperating institutions are allotted Federal funds for approved projects, and they may use their own staffs for conducting the courses offered. All of the courses are open to women on a equal basis with men, Dr. Elliott said.

Dr. Elliott spoke of the program for utilizing the colleges and universities in the war effort as still in a state of flux. There has been a sharp division of opinion on some of the policies stated in the WMC report, and particularly on the statement that all able-bodied young men are destined for the armed forces. He pointed out that if the war is a long one, we cannot afford to throw aside all technical and scientific and cultural training, or we shall be without critical services that depend upon long periods of preparation. The determination of what use should be made of the colleges and universities must consider this possibility, Dr. Elliott believed.

He pointed out also that it is very difficult to get young women to go into long-time training for professional activities. They want to get immediately into war work. It is a question of fostering a realization that essential service is not only direct military service, he suggested. Women will have to be trained in increasing numbers for the various forms of civilian social service that are now becoming so highly important in the conduct of the war. Above all, however, adequate teaching staffs must be maintained for the schools. This work is so important, he believed, that the Government should give financial aid to assure that this part of the country's trained personnel is not depleted. Dr. Elliott's office has prepared such a proposal to Congress, he said.

Dr. Elliott informed the committee that a competent leader is to be appointed by the WMC for all women's activities as they affect the higher institutions. He spoke also of the October 17 report of the Committee on the Use of College Women in the War, and agreed to see that copies of this report are delivered to Miss Russell for distribution to the committee members.

PLACEMENT OF TRAINED WOMEN

The committee pointed out that no proper placement of professionally and technically trained women is provided for, and that without such provision the effectiveness of the training program is in question. It was agreed that the committee and the staff together will study the problem. Each member of the committee will find out what is being done in her own area and report back on this at the next meeting. At the same time, the staff will gather information on: (1) the use that is being made of the roster in placing women; (2) the extent to which women who take the Engineering and Science courses are being placed and by what method; and (3) the demand made upon the United States Employment Service for technically trained women, the extent to which it is met, and the method of meeting it.

If the findings indicate the need, this information will then be used as a first step toward getting a special placement service to facilitate the flow of trained women into jobs on the professional and technical level.

INCREASED TRAINING AND SUPERVISORY PERSONNEL

The need for increased personnel in management was described and discussed by committee members. No genuine analysis of turnovers, absenteeism, and other forms of labor waste is being made in the plants, they said, and nothing is being done to get at the basic difficulties. It was believed that a stronger statement on this subject can be made now than was originally made and that industry will be less opposed to the idea now.

REPORTS FROM REGIONAL DIRECTORS OF WMC

The question of the committee member's relationship to the regional office of the WMC functioning in her area was raised and the criticism was made that committee members are not asked to sit in on the conferences and are not informed of what is being done by the WMC offices in their areas. The committee voted to recommend that its members be sent the reports of the WMC regional directors in all areas, to keep them informed of activities relating to the total program.

ALLEGED DISCRIMINATORY EMPLOYMENT PRACTICES

Mrs. Bousfield read to the committee a letter from a Cincinnati attorney, charging that discrimination in employment is being practiced against Negro women in the Cincinnati area. On her recommendation, the committee voted to refer the matter to the Fair Employment Practices Committee of the War Manpower Commission.

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WAR MANPOWER COMMISSION

WOMEN'S ADVISORY COMMITTEE

MINUTES OF FIFTH MEETING, DECEMBER 3, 1942

10 a.m. to 12:30 p.m. amd 2 p.m. to 5:30 p.m.

Room 5546, Social Security Building, Washington, D. C.

Chairman

Miss Margaret A. Hickey

Committee Members Present
Mrs. Harris T. Baldwin
Mrs. Dorothy Bellanca
Miss Bess Bloodworth
Mrs. Maudelle Bousfield
Mrs. Saidie Orr Dunbar
Mrs. Gladys Talbott Edwards
Mrs. Lowell Hobart
Miss Jennie Matyas
Mrs. Blanche M. Ralston

War Manpower Staff Present
Miss Lillian Alexander
Mrs. Anne T. Brown
Miss Mary Curran
Mrs. May Thompson Evans
Miss Helen Greenblatt
Mrs. Eva Hansl
Mrs. Edith M. Keyes
Mrs. Marjorie Marshall
Miss Sylvia Hagler
Miss Thelma McKelvey
Miss Marjorie G. Russell
Miss Sara Southall
Mr. Clarence Weiner

USES Staff Present
Miss Renee Lubin
Miss Helen Ringe

SUMMARY
WRITER: MG, Minutes and Reports Section, OEM

Woman's Advisory Committee
to the War Manpower
Commission - Summary

December 3, 1942

PURPOSE OF THE MEETING

The agenda for the second day's meeting of the Woman's Advisory Committee included the following subjects: (1) Proposed registration of women; (2) Report on the Management Labor Policy Committee action on the proposed policy on employment of youth under 18; and (3) Report of the Subcommittee on Public Relations.

DISCUSSION OF PROPOSED REGISTRATION OF WOMEN

In introducing the proposed registration of women for the committee's consideration, Miss Hickey briefly summarized as background the British plan and pointed out certain aspects of British experience that have relevance to the problem in the United States. At Miss Matyas's request she agreed to provide committee members with copies of this summary.

The committee then reviewed the "Initial Program for Accelerated Employment of Women," which proposes that a women's enrollment campaign be conducted under specified conditions in certain labor-shortage areas, to bring into the labor market large numbers of women who are not customarily employed. The detailed provisions of this program were discussed in conjunction with the facts revealed in the confidential summary of registrations that have already been conducted.

Program for Conducting Women's Enrollment Campaign.--The various points provided for under the plan of enrollment were considered by the committee, particularly in relation to the campaign that has been conducted in the Detroit area. At the request of the committee, Miss McKelvey described the Detroit campaign, which enrolled 260,000 women in August under the sponsorship of Federal agencies (primarily the U. S. Employment Service) and with the help of many local volunteer workers. Miss McKelvey attributed the failure of the Detroit program to the fact that the employers continued hiring the gate, instead of using the registration list in placing workers. To avoid this type of situation, she said, the program proposes to get local agreements signed by employers as preliminary to the enrollment campaign. The Detroit employers wanted the registration because of the relationship of war contracts to labor supply, it was pointed out, and they had no further interest in using the lists, once they were compiled.

Response of Women.--Out of 33,000 women called in for interviews in Detroit, only 12,000 or about 35 percent, responded and only about 21 percent of those who responded were referred to jobs, a committee member pointed out. If these results are representative, she believed, tremendous numbers of women will have to be called in. The response varies greatly in different localities, Miss McKelvey said, but it has not been very good in general. Mr. Weiner believed that the degree of response is directly dependent upon the attitude of the employers. He believed, also, that the type of calling card used in the Detroit area had something to do with the discouragingly small response. If a specially designed card had been used, the response would

have been better, he said. Many who had filled out the registration card did not realize that the calling card had reference to the registration. An operational bulletin is being written, he said, to set forth the best practices discovered in the field. It recommends the use of a calling card that will carry over the same type of appeal that the registration card makes.

Agreements with Employers.--The need for a closer relationship between the U. S. Employment Service and the employing groups was pointed out by Miss Matyas, who said that employers do not yet make use of the Employment Service. All the Labor and Management groups are working on such agreements, Miss Southall pointed out. In the whole Pacific Coast area a certification plan is being drawn up, and the agreements are going to call for certification before a worker changes his job. The control will be in the Employment Office, although an employer may be designated as a certifying agency with the approval of the Labor-Management Committee. It is a long, hard job to get all these arrangements through, however, and any one employer can upset the plan by refusing to sign, Miss Southall said. She questioned whether, from a practical standpoint, recruiting can always wait until all the desired conditions exist. The most important thing, she said, is to get the employer's specifications on hiring before starting recruiting. It will not always be possible to stop in-migration completely, she believed.

Mrs. Bellanca asked how much pressure is being brought upon management by the national Management Labor Committee, to increase employer use of the U. S. Employment Service. The national representatives do support the principle, she was told, but it is difficult to bring pressure down to individual cases so that there is effective use of the Employment Service. Miss Hickey pointed out that management, labor, and the people not now employed can only be "persuaded" to support the plan. There is as yet no other control. But it must be kept in mind, she said, that there may be more direction and more control later.

The facts do show an increasing percentage of acceptance of referrals coming from the U. S. Employment Service, in proportion to total accessions by industry, Miss Ringe said, and there is a great change from a year and a half ago in this respect.

Manning Tables.--It was agreed that Mr. Charters will be asked to explain the Manning Tables to the committee at a later meeting. A good explanation is also given in the November issue of Factory and Management, Miss Ringe said.

Unemployed Persons in the Labor Market.--The program urges full use of unemployed persons already in the labor market, including minority groups, aliens, handicapped persons, and women, before efforts are made to bring into the labor market women who are not usually a part of it. In commenting on this point, Miss Hickey said that the problem of the older women must be remembered. Hiring practices cannot be changed over night, she said, but perhaps a better job can be done toward breaking down the age prejudice so that older women will be used.

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Mr. Weiner said that there is an increasing use of minority groups. The number of Negro workers employed by war industries is gradually increasing, although this increase has been less sensational than the increase in employment of women. Employers are more willing to use women than Negroes, he said.

The increasing use of Negro workers in nonessential industries was reported also, in jobs where they have never been used before, and handicapped persons are also being used, it was said.

Obtaining Management-Labor Support of WMC Policy.--Part of the formulation of the program is to get management and labor support, Miss McKelvey said. No local area director is to propose a plan not completely supported by the Labor-Management Committee. She described the use of the policy in connection with Navy contracts. The Navy Department has sent a letter to its suppliers, directing them to carry out the provisions of the program on Navy contracts. This makes a direct tie-in with the local situation through the contract, she pointed out. Miss Hickey asked whether this information can be released for the influence it might have on other industries and agencies. Miss McKelvey will check for the Navy Department's permission on this point.

It was agreed also that about 20 copies of the WMC policy will be sent to each committee member for distribution to interested groups in the local areas. Over 5,000 copies have been distributed through the schools, and the labor press has published the statement quite widely, it was said. The possibility of reaching management further through the Industry Divisions of WPB was also proposed.

Part-Time Workers.--The question was raised whether anything has been done in labor-shortage areas in the United States to push the idea of part-time workers, and whether employers could be persuaded to arrange shifts to use women on some part-time basis. The idea has been pushed only slightly, Miss McKelvey said, but a national pattern of procedure and practice will be helpful. Mr. Weiner pointed out that the part-time principle is already practiced in the nonwar industries, and that the war industries are beginning to use part-time men. He said, too, that the Civil Service has recently named eight types of jobs that are open to part-time workers. This practice will be authorized in the field also, and the Government will be taking the lead in the part-time program by this move. It is difficult, however, for management to organize its shifts so that part-time workers can be used, Mr. Weiner pointed out. He knew of no war plants that have instituted part-time shifts for women. Mrs. Bellanca suggested that a bigger public relations job on the part-time idea would help to get the result desired.

Policy on War Contracts.--A problem arising from the shifting of war contracts from the labor-shortage areas was brought up by Mrs. Bellanca. The WMC has declared Baltimore not entitled to war work on clothing. As a result, no contracts for uniforms are going to Baltimore clothing manufacturers, and since little civilian work is being done, the Baltimore clothing workers are being thrown out of work. Many of the older workers cannot go into the war plants, and they are being forced onto relief for lack of employment. Mrs. Bellanca questioned the fairness of an order that operates with this effect.

Miss Hickey asked in this connection what is being done to retrain older workers who are being displaced by such conditions. They receive priorities in retraining, Mr. Weiner said, and are retrained wherever possible. But, he pointed out, there is a shortage of training facilities. Miss Matyas believed that it was almost impossible to retrain clothing workers, and that to do so while clothing is still needed would be absurd. Although Baltimore is a tight area for heavy industry, she saw no reason why clothing contracts should not go where there are workers who cannot be transferred.

Mr. Weiner explained the background of the order. For the past 2 years, he said, the U. S. Employment Service has tried to persuade the Army and Navy that war contracts should not be let in labor-shortage areas if it is possible to place them in labor-surplus areas. This plan has now been definitely agreed upon by the Army and, to some extent, by the Navy, and WMC has been asked to provide a list of areas to be used as a guide in determining where contracts are to go. Difficulties have arisen from the plan in many areas, he said, and many of the complaints have been warranted. These complaints are being taken up. Contracts are being reexamined and corrections will be made in many instances. But it is important that the principle has been established for the many situations in which it is valuable to the war effort, Mr. Weiner thought.

Utilization of the Older Worker.--The point raised by Mrs. Bellanca emphasized the importance of additional work on the utilization of older workers. At Miss Hickey's proposal, it was agreed that the staff would start research toward the drawing up of an effective statement enunciating the position of WMC on this subject and that informational background for consideration of the problem would be provided to the committee at its next meeting. The study is to be made from the total manpower point of view, rather than as a problem of women workers alone.

Transfer from Less Essential Industries.--The program points out the need for a planned transfer of men and women workers to the war industries from less essential industries and for the substitution for them, when desirable, of older workers, part-time workers, or workers who are otherwise not qualified for war production, it was pointed out.

One difficulty in getting workers to transfer from less essential industries is that these workers lose seniority and other rights they have in their present employment, Miss Bloodworth said. Industry does not give them the privilege of reinstatement that is being given to men who go into the Army. Mr. Weiner corroborated this view of the problem. Three-fourths of all persons called in for referral to essential industries have refused, he said, and the chief reason given is the loss of rights on the present job. The wage question is less important than the question of these rights, and workers are turning down jobs paying higher wages, to stay on in jobs paying less but carrying with them certain established rights that would be lost by transfer.

CONCLUSIONS ON THE PROPOSED PLAN

Miss Hickey asked whether the committee would agree to support the policy of enrollment of women in selected critical areas, rather than an over-all registration of women.

Some committee members opposed acceptance. The plan proposed is not new, it was said, but is only a formal statement of what WMC has been doong. The question is one of how effective the method has proved in the registrations that have already been conducted. The confidential report on these registrations, it was argued, indicates the failure of the voluntary, piece-meal plan. According to the figures, there is no interest on the part of women, and if these figures are representative, there is need to emphasize the importance of war work by a national, over-all registration. A national registration, written as a law, it was believed by those who expressed this view, would create the necessary sense of the importance of the step and would set up authority for the utilization of women. The list compiled would be ready for use by areas as needed. It was argued, also, that a recruiting program in itself is not enough. Two other steps are essential: (1) the establishment of facilities to assure care for the homes and children of women who register; and (2) a thorough analysis of present practices to ascertain whether the labor that is now available is being efficiently and completely used. The problem is not only one of labor shortage, but of maldistribution and confusion, it was said.

On the other hand, the need for meeting actual and critical labor shortages, quickly and efficiantly, where they now exist, was recognized. The proposed plan is pulling together into one the best of all the scattered single plans, no one of which contained all the provisions of the proposed over-all plan, Government representatives pointed out. It is designed to correct the weaknesses that have been found in the enrollments so far conducted, and its provisions consider the need for adequate child-care agencies and other necessary community facilities as preliminary to a successful registration of women. The fact was emphasized that the registration of women is being handled as a segment of national service legislation, but that it is ahead of the total plan.

Miss Matyas brought the discussion to a motion. In giving her support to the plan, however, she suggested that the consideration of enrollment only in a narrow sense, even if provision for community facilities is included, is not enough. The solution must go deeper, she said, to find out whether industry is now so organized that it will not need additional labor if the present supply is efficiently used, whether present supervisory services are adequate in industry, whether proper provision is being made for upgrading workers, et cetera. She believed that the determination of whether industry is organized to utilize the labor supply it already has must be a part of the procedure of declaring a specific area a labor-shortage area, in which registration of women is to be undertaken. All of these points are included in the policy as stated, Miss Hickey said, and there need be no fear that they will not be taken into consideration.

Miss Matyas then moved that the committee concur in support of the plan for enrollment of women on a local basis, where area committees have agreed that such enrollment is essential. The motion was seconded by Mrs. Baldwin and carried by vote of the committee.

REPORT OF THE SUBCOMMITTEE ON PUBLIC RELATIONS

Miss Bloodworth presented to the committee the report of the Subcommittee on Public Relations. Part I of the report outlined the groups to be approached and the methods to be used in reaching them through a planned and coordinated publicity campaign. The proposed methods were discussed by the committee, and the importance of tying in locally with programs in areas where recruiting is to be done was brought out.

Part II of the report recommended that adequate staff be attached to the committee in the Washington office to handle its work. The task of following up on recommendations and keeping the policy moving along effectively between meetings imposes an unreasonably heavy burden upon the already overburdened part-time executive secretary, the committee agreed. By vote of the committee, Miss Hickey will transmit the request for a full-time executive secretary, to be attached to Miss Russell's office and to handle the work of the Women's Advisory Committee.

EMPLOYMENT OF YOUTH UNDER 18

Miss Hickey reported that the tentative policy statement on employment of young workers had met with decided opposition in the Management-Labor Policy Committee, especially in reference to its application to agriculture, and that it had been tabled there until representatives of all farm groups can be heard at a general meeting on the whole agricultural problem. There is opposition from one farm organization, at least, on this particular point, Mrs. Edwards explained. But the other side of the agricultural view will be represented at the meeting of the Management-Labor Committee on December 12, when the subject is scheduled to come up again, she said.

RELATIONSHIP TO ORGANIZED GROUPS

Letters stating suggestions and expressing attitudes of organized groups on the womanpower program are coming in increasingly, Miss Hickey said, and some policy regarding the handling of them should be arrived at. It was agreed that such statements will be summarized and submitted to the committee members for their information.

REPRINTS

The committee agreed to send a note of thanks to Mrs. Gould, who had arranged for reprints of the Furnas article, "Woman Power," for distribution.

ANNOUNCEMENTS

Representation at Other Meetings.--Miss Hickey announced that Mrs. Baldwin will attend the Management-Labor meeting on December 11 as her alternate, and that Miss Bloodworth will represent the Woman's Policy Committee at the meeting of the Committee on the Use of College Women in the War, to be held in New York on December 12 and 13. It was agreed that Miss Hickey will arrange to discuss the report of the committee before the Women's Patriotic Conference on National Defense, that will meet in Washington on January 26 and 27.

Womanpower Radio Program.--Mrs. Eva Hansl, who is working on the Womanpower program, has asked for suggestions from the committee on projects, special community woman power set-ups, and human interest stories of women in war work, to be used in this series of broadcasts, Miss Hickey said. They may be sent to her either at the Federal Security Agency or in care of Woman Power, Columbia Broadcasting Station, Washington, D. C. Miss Hickey will speak on this program over the Columbia Network at 12:15 (EWT) on Sunday, December 13.

Subcommittees.--The Subcommittee on Education (Mrs. Bousfield, Miss Allen, Mrs. Edwards, Mrs. Dunbar), which had been appointed at the last meeting, has not yet been given any specific assignment, Miss Hickey said, but it will be held in readiness for work developing out of consideration of the policy on the employment of young workers.

Miss Hickey referred to the Subcommittee on Public Relations (Miss Bloodworth, Mrs. Edwards, Mrs. Bellanca, and Mrs. Gould) the additional problem of utilization of women's groups on a national level. The staff has already developed a skeleton plan, upon which it wants the help of the committee, she said.

A subcommittee to study the problem of employment of women in agriculture was appointed, consisting of Mrs. Edwards (chairman), Mrs. Dunbar, and Mrs. Ralston. The committee as a whole will stand ready to help in every way, Miss Hickey said, and the staff will work with the subcommittee.

It was agreed that subcommittees will regularly meet the day before the scheduled meeting of the committee as a whole.

NEXT MEETING

January 13 and 14 will be proposed to Mr. McNutt as convenient dates for the next meeting of the Women's Advisory Committee.

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WAR MANPOWER COMMISSION

November 9, 1942

Planning Service Memorandum: Part-time Workers as a Labor Reserve

Summary

In the expansion of the labor market, part-time employment is a manpower resource whose importance will increase with each succeeding month. A large part of this reserve, likely to total several millions of persons, can be made available through organized planning and direction.

The main types of part-time work are part-day shifts, part-of-the-week, one day or night, and week-end working. There are more than a quarter of a million part-time workers employed in England, of whom 50,000 are in the munitions industries. British experience has indicated the value of part-time work arrangements.

Part-time work is accompanied by several problems such as technical difficulties with shift arrangements, and training problems. These problems can be met, however, with special efforts. Moreover, there are several compensatory features to part-time work schemes, such as alleviation of the day-care problem.

Part-time work is most adaptable to trade and service industries. Shorter training periods are necessary here, and daily and weekly peaks reduce the need of "pairing" workers on alternate shifts. A million and a half part-timers were used in 1939 mainly in service industries. Under the impetus of the war program, the number is rapidly increasing.

Today part-time workers could be used to replace full-time effectives in service industries, releasing the latter for full-time work in essential industries. They could also be used directly in essential industries where experience has proved them fully as efficient as full-time workers. Already scores of proposals have been received suggesting various part-time schemes. Such interest and initiative can be made effective and developed through local programs, directed and coordinated by the War Manpower Commission. From both a production and a morale viewpoint, the use of part-time workers is desirable.

Special emphasis on programs for the employment of part-time workers should be confined to tight labor markets. They should be started locally after reserves of unemployed workers are used up, but not necessarily before the reserves of women, young people and other groups are exhausted. A program of organized part-time work should be initiated now in one or two vital labor market areas for experimental purposes.

1. Objective

In areas of critical labor shortage, planned programs of part-time work may be used to secure additional, needed manpower. This source is being increasingly drawn upon abroad and promises in this country to be an important subsidiary reserve of manpower.

2. Patterns of Part-Time Work

Part-time work may be defined in broadest terms as working for fewer hours per time-period than customary in the community or industry. The patterns vary from job to job and industry to industry.

The main types are part-shift, part-of-the-week, one day or night, and week-end working.

(a) The most popular arrangement in British factories has been to "pair" workers on half-day shifts with the following hours typical: 8:00 a.m. - 12:30 Monday through Saturday, total hours, 27; 12:30 - 5:30 p.m., Monday through Friday, total hours, 25.

(b) Many firms, including retail stores, prefer one - to three - day work periods rather than half shifts. This permits a more even flow of work or provides more continuous service on peak days, and makes for easier supervisory and office work.

(c) One-day - or one-night-a-week working has been tried in some English plants to "spell" the regular staff. This and week-end work provides a means by which already-employed men and women can work a few hours a week.

3. Experience

(a) By last spring more than 250,000 part-time workers, of whom 50,000 were in the munitions industries, were employed in England. The number has been expanding rapidly.

A significant program has been developed by the Manchester Chamber of Commerce and is called "The Manchester Plan." The Chamber found a reserve of manpower among business and professional men who because of contraction in trade could take on half-time work, or who had retired and had very little to do. Employers' objections were met by the high caliber of the men and by a system of "pairing" two on each machine, one for each shift. The trade unions approved the scheme since they felt that these men would be re-absorbed into their own businesses after the war and would not compete with their members for jobs. By the third day of operation, 500 applicants had been placed. About 70 percent offered more than half-time service and 45 percent offered full-time service. Sixty-two percent were between 21 and 55 years of age and 18 percent between 55 and 60. Six percent were over 70 years of age. Initiated in April, the plan had enrolled 1,000 men by the end of July. The response was keen, the men entering into the work with zest and spirit.

The list of vacancies filled included semi-skilled work in aircraft, semi-skilled machine operators, clerical workers, examiners, millwrights, maintenance mechanics, clerks and bus drivers.

American experience with part-time work in manufacturing has been limited, except during depression when lack of orders motivated part-time and work-spreading schemes. Recently, a firm manufacturing slide fasteners for gun covers began taking part-timers and cases are known of their satisfactory use during the last war. In 1939 there were 1,500,000 part-time workers in this country practically all of whom were employed in trade and service industries. Under the impetus of the war program this number has increased and occupations with part-time workers, while still predominantly in the service industries, now include office work and bus driving.

4. Problems and Difficulties

(a) Efficiency

In comparison with full-time operations, part-time employment, when given a fair trial, has proved fully as efficient both in England and in Germany. There is less absenteeism and fatigue; a greater intensity of work is permitted and hours have been geared to eliminate the noon hour. The chief difficulties seem to be managerial in that the more frequent changes of personnel add to supervisory and office duties. Many plant operations are adaptable to part-time workers.

(b) Wages

Wages for part-time work are usually proportional to hours worked. In cases where the base rate is low, as in retailing, a slightly higher rate may have to be paid to secure an adequate number of workers. Wages for part-time saleswomen, restaurant workers, theater ushers and cleaning women averaged twelve dollars a week in New York City in 1939. Today, this would probably be a minimum acceptable amount.

(c) Training

It has been pointed out that the training load is doubled when part-time workers are substituted for full-time ones. In tight labor markets, though, the absence of qualified full-time trainees makes training facilities available. Furthermore, part-timers can and should be used on jobs which do not require a lengthy training period.

(d) Labor relations

In general, organized labor may feel that there should be little or no unemployment among regularly employed workers before part-time programs are initiated. Unions may feel that part-timers are harder to discipline, that they upset normal relations with Management, and that they will speed up the normal pace of work. However, in an all-out war effort, such objections become secondary. Labor unions generally are cooperating in all measures to improve production.

(e) Day-care

Part-time programs go far to meet the problem of day-care for children. In communities where no such facilities exist or where existing facilities are overburdened, women, through "pairing" the care of children between themselves can take part-time jobs. This is one of the most important advantages of a part-time work program.

(f) Attractiveness of work

Care should be taken to make part-time work attractive. Expenses for carfar, clothing and lunches are high relative to the wage, and the time spent going to and coming from work is long compared with the actual time worked. Further, women whose husbands earn a high enough wage to meet their accustomed scale of living have less inducement to work. Vacations with pay are offered abroad.

(g) Popular support

Unquestionably widespread community support would accompany any local program to use part-time workers. Letters are continually being received suggesting various types of programming. Community response and enthusiasm would be highest if the plan included older men and men in business and professions, who, as in Manchester, want to get into the war effort.

5. Uses and Sources of Part-time Workers

(a) Uses

(1) The most efficient method of using part-timers is to place them in trade and service jobs releasing full-time men and women for war work. In tight labor market areas, women have increasingly taken over men's jobs, and the next step is to release them too for full-time work in essential industry. Part-time workers can be "paired", on morning and afternoon shifts.

(2) Placing part-timers in manufacturing has less precedence than in trade. Again, the use depends upon the job. In general, those jobs which are repetitive and whose operations are not lengthy are most adaptable.

(3) Part-time workers can be used at peak periods to supplement the regular working force in such industries as transportation, restaurants and retail stores.

(b) Sources

A recent survey conducted by the WPA places the number of full-time persons available for employment at 7.6 millions and for part-time work at 5.7 millions. The latter are grouped as follows: housewives, 2.9 millions; students, 2.5 millions; and others at 0.7 millions. Of these a good number have had work experience within the last five years. The verbal indication of willingness to work, however, is not equivalent to actual availability on a particular market, hence these estimates may be too large.

6. An Experimental Program

A beginning should be made now in the use of part-time workers. A flexible, experimental program is needed to develop methods by which jobs and workers can be brought together. If tried in one or more critical labor market areas, the experience developed could be made available to the rest of the country.

While no new agency should be set up, a part-time program would develop the mechanism of a market whereby jobs and workers would be brought together. This would involve the following considerations:

(a) Jobs

Openings whereby the reserve could be effectively utilized would have to be secured. Effort should be made first to find positions in trade and service industries so as to release full-time manpower for more essential occupations. Openings in war industry itself, however, should be sought. British experience shows that part-timers are as efficient as full-time workers. Furthermore, jobs directly in industry would be more appealing to the men and women to whom financial return is secondary to the desire for an active place in the war effort.

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(b) Applicants

Careful "weeding out" of applicants is necessary to prevent an initial high turnover. People with skills and recent work experience should be used first.

(c) Control of Shifting

Some control should be set up to prevent shifting from full-to part-time.

(d) Supervisors

Foremen and supervisors should be brought into the organization of a shop program from the beginning. By giving them the feeling that they are part of the plan latent opposition will be overcome.

(e) Clear policy on hours

People working under the plan should feel from the start that the program is limited to the hours agreed upon and that it is not preparatory to working full time. Supervisors should be prevented from making good part-time workers change over to full-time.

HAS THE TIME COME FOR A NATIONAL REGISTRATION OF WOMEN

IF SO--WHY?--WHO?--WHERE?--HOW?

REGISTRATION CAN BE:

a) For information
b) For voluntary "direction" into war work
c) For compulsory service (a draft)

IT CAN BE:

general--covering all from 18-65
or
limited to certain age groups as needed

IT CAN BE:

local
or
national

IT CAN BE:

voluntary
or
compulsory

THESE DISTINCTIONS WILL BE CLEAR WHEN WE CONSIDER THE FOLLOWING CASES:

I. IN THE UNITED STATES TO DATE--

WE HAVE HAD:

Compulsory registration for all men 18-65.
Draft of men 18-45 for the armed forces with some exceptions for dependency and for essential war work at the discretion of local Draft Boards.
Some voluntary "direction" for men with needed skills over 45 and younger men rejected by Draft boards through the U. S. Employment Service.

II. IN ENGLAND

THERE IS A NATIONAL SERVICE ACT WHICH:

Drafts all able bodied men from 18-51 to serve with the armed forces, regardless of dependency, unless they are doing essential war work and are irreplaceable.

Drafts all unmarried women 20-30 for service with the armed forces, or in essential industries, or in agriculture.
Permits "direction" of women over 20 into war work or essential civilian jobs. Women up to 45 have been registered by age groups; each registrant is personally interviewed by Employment Exchange officials and "directed" into useful occupations.

The English experience is interesting, although it must be remembered that the situation in the United States is different from that in England. For example, the proportion of women to men is considerably higher in England than in this country. Also, in England the demand for men for the armed services has been much greater so far.

In England the registration of women was done on a piecemeal basis. There was no mass registration. Some authorities comment that this piecemeal basis seems the most practical way, while others contend that an over-all registration would have made possible the more effective planning of labor power.

The first registration order was passed on March 15, 1941. This required all women between the ages of 20 and 30 to register with the Ministry of Labour. In December, 1941, this registration had been completed and the order was extended to require the registration of women between 18 and 41 at fortnightly intervals. Recently, girls aged 16 and 17 have been included. Thus, a complete registration of all women between 16 and 41 has been completed -- two and a half years after England entered the war.

Voluntary registration of women in England was accompanied by setting up machinery for transferring women from unessential peacetime work to essential war work. This was done by "direction." The women who registered in the early months (those between 20 and 30) were interviewed by women officers of the Ministry of Labour. As far as possible, the women interviewed were permitted to express a preference for the kind of work they wished to do. Of all those interviewed less than 2% disagreed with the judgment of the interviewer that they should transfer to more urgent work. An indication of the type of penalty that was applied occurred in the case of an unemployed button-hole machinist who refused work two hundred miles from home and was disqualified from unemployment benefits for six weeks. From one-fourth to one-third of those interviewed were found available for work of national importance.

On December 18, 1941, the National Service Act ushered in conscription for women 20 and 30 years of age. Under the conscription act women within these age limits might chose (a) service with the auxiliary services, (b) civil defense, or (c) certain specified vacancies in industry. Those recruited for the auxiliary forces were not to be required to use lethal weapons unless volunteering to do so. Married women and any woman having a child of her own under 14 years of age living with her were exempt.

On January 24, 1942, women up to 41 years of age and women between 20 and 30 years deferred from compulsory service because of marriage or dependent children, were subject to "direction" into industrial work of national importance. Wives of men in the services and married women with household responsibilities were not expected to take work away from home.

In developing this plan for mobilizing woman power the Minister of Labour appointed a women's advisory committee composed of labor women, women members of Parliament, and other women leaders to consult with him on questions relating to woman power. Though nominally an advisory body, it has actually been responsible for policies relating to women's work in war industries.

The registration and "direction" of women was carried out by women officials of the Ministry of Labour. Forty-four local boards were set up to administer the National Service Act. On every hardship tribunal, one woman was supposed to sit--and at least one woman was to sit as assessor when the umpire heard appeals.

This brief survey is not intended to indicate that the English procedure is a model for America to copy. However, it has worked. How well it has worked remains for future historians to determine. The British experience clearly indicates, however, the complexities involved in the mobilization of the woman power of the country.

III. IN CANADA

THERE WAS a general registration of all persons from 16-70 but this did not prove particularly effective as the lists soon became outdated. New registrations are now made by special groups and classes.

IN 1940 A NATIONAL SERVICE ACT WAS PASSED WHICH:
Requires men 18-45 to serve with the armed forces.
Gives the government power to control all labor from 16-69 including women as well as men.

Under this act, persons who do not voluntarily work may be required to accept employment. The National Selective Service Officer may by written order direct any person to report for an interview; direct an unemployed person, or person not gainfully occupied, to apply for and accept available work. Work, however, cannot be at a lower wage or under less favorable conditions than those prevailing in the community for similar work. In determining the suitability of work, physical fitness, prior training, experience, former earnings, distance from place of residence, and domestic responsibilities are considered. Compulsion is applied only in exceptional circumstances--although the power resides in the government to use it whenever necessary.

WHAT SHALL WE DO?

A. SHALL WE REGISTER

FOR COMPULSORY SERVICE?
(This would imply compulsory service for all labor)

PRO

Manpower commissioner, Paul V. McNutt, believes that "We are now encountering problems which are too complex for effective voluntary action. We have encountered employers who would not cooperate to use their workers effectively. We have encountered workers who followed immediate advantage rather than national need." Compulsion is needed in some cases, he believes, to utilize fully the local labor supply (making use of available women and non-white workers). Compulsion is needed to transfer workers from non-essential to essential industries--to force the breaking down of occupations and the use of less skilled labor--to combat pirating and hoarding of labor--to provide adequate labor for farms, in copper mines, and in other essential industries.

Compulsory service will be necessary sooner or later--why wait? We might avoid errors by working out a united national policy now.

In time of war it is no more undemocratic to tell a man he must join the armed forces, than to tell anyone he or she must work in war industries or essential civilian jobs.

CON

The Management Labor Advisory Committee to the Manpower Commission has expressed strong opposition to compulsory service. Management and organized labor both feel that voluntary recruitment has not been tried sufficiently long nor has it been sufficiently well organized. A centralized authority is needed to give clear direction. If information is available and directions are clear, managers and workers will voluntarily comply.

A draft of labor is dangerous and almost impossible. Forced labor for a private employer who is in business to make a profit is involuntary servitude. Slavery has been outlawed by our Constitution.

Compulsory service will be detrimental to the morale of both management and labor. If workers are forced to work they will not be as efficient and nothing will be gained in production.

FOR VOLUNTARY "DIRECTION" INTO WAR WORK?

PRO

This may be the implication of the President's recent suggestion for a registration of women--although this is not entirely clear.

Voluntary "direction" is used successfully in England for women from 30-45. Why should it not be used for all women?

CON

Voluntary "direction" has failed so far with men from 45-65. According to a recent report in one test area 273 employers in non-war essential businesses were asked to give up their labor to war plants. None complied. As fast as the U.S.E.S. can tabulate 39 million questionnaires, it is asking men with needed skills to transfer jobs voluntarily. About 90% are refusing. According to Mr. McNutt, neither the employers nor the workers are to blame. They are merely refusing to do something which they believe the government ought to have enough guts to order them to do, if it is really necessary. Both would change more willingly, he believes, if this sort of sacrifice were universal.

FOR INFORMATION ONLY?

PRO

The President has indicated that the government needs information on the number of women available for work, their training, family status, mobility, etc. To secure this information, a national registration is necessary.

CON

Much information regarding women, their training, and family status is already available through Census reports, Social Security records, and through organizations with Master Files, such as our own. Additional information could be secured through sampling studies.

A general registration would be laborious and time consuming. The U.S.E.S. is still struggling to tabulate the 39 million questionnaires resulting from the registration of men. Who would handle the additional millions of women's blanks?

Experience in other countries has proven that general lists soon become outdated because people move, their training changes, they marry, and they die.

A general registration for information only is merely a count of heads--it would not get a single person into a new job nor out of an old one. We do not have time, machines, materials, nor personnel to waste.

B. WHO SHOULD REGISTER?

ALL WOMEN - OR ONLY SPECIFIED AGE GROUPS AS NEEDED?
(women 20-30; or 18-45, or any other range when needed)

PRO LIMITED AGE GROUPS

Inasmuch as men were made subject to the draft by age groups--now 18-45--women might be similarly registered by age groups as needed. Precedent for such a step is given in England where women were registered by age classes. Age distinctions are also made for service; single women from 20-30 are subject to compulsory service and others 30-45 are subject to "direction" into some type of war work.

PRO GENERAL REGISTRATION

The power to register for whatever purpose should extend to all alike. While all might not be called into active service, the government should have the authority which can be used with discretion. Age limitations would be unfair as some perfectly able bodied and capable older women might be available for work. Many women have never been in favor of limiting employment in any way by age--why should registration be limited?

C. WHERE?

THROUGHOUT THE COUNTRY--OR IN LABOR SHORTAGE AREAS ONLY?

PRO LABOR SHORTAGE AREAS ONLY

This would be tackling the problem where it is most pressing. It would be more efficient and less wasteful of time--and more productive of immediate results.

PRO THROUGHOUT THE NATION

Labor shortage areas are changing so rapidly from day to day that national authority would be needed to cover the whole country eventually anyway.

December 30, 1942

MEMORANDUM

To: Members of the Women's Advisory Committee

From: William Haber, Director
Bureau of Program Planning and Review

Subject: "A Review of British Experience with the Women's Land Army"

The attached memorandum provides a brief summary of the following features of the British Women's Land Army: (1) development, (2) organization, (3) expenditures, (4) selection and enrollment, (5) training, (6) wages, (7) conditions of employment, (8) uniforms, (9) welfare and (10) types of work performed.

In view of the differences in the patterns of British and American agriculture, caution should be exercised in drawing direct parallels between the use of a Women's Land Army in Great Britain and the United States. In a memorandum soon to be published on Agricultural Labor Market Policy in Russia, Germany, Great Britain and the United States, an evaluation of the role of the women's land armies in meeting farm labor demand will be treated in greater detail.

Your attention is called to the following significant points which the attached memorandum brings out:

1. Tilled acreage in the United Kingdom has increased by 60% since 1939.

2. Over the same period, mid-summer agricultural employment has declined by 2.8%.

3. About twice as many women were employed in agriculture during 1942 as in 1939. In 1939, 6.1% of the workers employed in agriculture were women. In 1942, 12.5% of those employed were women.

4. More than one-third of the women employed in agriculture by the fall of 1942 were members of the Women's Land Army. Thus, most of the increase over the number of women employed in 1939 appears to have been accounted for by the Women's Land Army.

5. The program of the Women's Land Army, operating at the local level through county offices with salaried employees, includes careful selection of applicants, medical examinations before acceptance, one-month's pre-employment training with pay at an approved market garden or public Farm Institute, issuance of work clothes, placement on suitable farms at prescribed conditions of employment, insurance against accident and illness, billeting of workers not housed at place of employment and organized welfare and recreational activities.

6. The growth of the Women's Land Army has been slow. Nearly a year and a half after the beginning of the war, only 8,300 members were employed. By March, 1942, 23,000 were at work, and as of October 5, 1942, over 50,000 were at work. Compulsory registration under the National Service Act of December, 1941 has increased the number of recruits to the Women's Land Army. However, the reluctance of farmers and regular laborers to accept women appears to have been a major factor in keeping the size of the army small. This resistance has been reduced with the growing shortage of farm labor and the experience of employers with the Women's Land Army.

7. Experience has demonstrated that women can perform such types of farm work as milking, care of stock, field work, harvesting, thrashing, tractor driving, ploughing, harrowing, packing and gardening.

December 30, 1942

WAR MANPOWER COMMISSION

A REVIEW OF BRITISH EXPERIENCE WITH THE WOMEN'S LAND ARMY

Bureau of Program Planning and Review

I. Development of the Women's Land Army

The Women's Land Army in Great Britain was organized before the outbreak of war by the Ministry of Agriculture and Fisheries, following the example set in the last war, and came into being on June 1, 1939. From the beginning there was no really reliable forecast of the demand for female farm labor, but it was assumed that considerable additional farm labor would be needed and that women were clearly fitted to relieve men of much of the lighter farm work.

The function of the Army is to recruit women of suitable physique for work on the land, to train them for agricultural duties, to locate them on farms, and to supervise generally their welfare after they have been placed in employment.

Before the outbreak of the war about 8,500 had been enrolled and by the end of October 1939 this figure had been doubled. At the end of January 1940, although 16,650 volunteers were on the roll, no more than 4.694 were employed. Of the 4,194 volunteers who had been trained at public expense, 2,017 were employed. Of the remainder so trained, 818 had resigned and 1,359 were awaiting employment. There are a number of reasons for the wide difference between the number of volunteers employed and those enrolled. For one thing, the expected demand had not materialized, with resulting disappointment to some of the volunteers. For another, the enrollment of 16,650 was no more than a paper figure. It included many who had expected to lose their peacetime jobs or to find the towns uninhabitable through air raids. Because this did not happen these girls did not become effective members of the Land Army. Others put down their names for other War Services as well and obtained employment elsewhere before vacancies occurred in the Land Army. 1/

By the end of December 1939, there were 4,500 members of the Women's Land Army in employment. By the end of December 1940 the number had risen to 8,300 and at the end of March 1942 there were 28,000 members at work. 2/ As of October 3,1942--a peak date--more than 50,000 full-time members were employed.3/ This compares with total agricultural employment of 794,000 for 1941. Of this group, 143,000 were women and 651,000 men. Because of the seasonal reduction in demand, recruitment for the Women's Land Army will be stopped until February, when more workers will be able to be absorbed.4/

1/ Select Committee on National Expenditure, Sixth Report (1940-1941)
2/ Parliamentary Debates, April 16, 1942
3/ Farming in Wartime Britain, British Information Services, October 26, 1942
4/ No figures are available on the number engaged in part-time or purely seasonal work.

Compulsory registration, under the National Service Act of December 1941, has increased the number of recruits to the Women's Land Army. Women of registration age are joining the Women's Land Army because in the opinion of the Ministry of Labor interviewers they appear suitable and are consequently advised by the interviewers to enroll in this Service, or because they are anxious to find work of national importance prior to registration. On the other hand, the Women's Land Army does not compete with the other Women's Services on an equal basis in that it does not provide a system of promotion.

The slow growth of the Women's Land Army despite the serious farm labor shortage is in part explained by the reluctance of farmers and regular farm laborers to accept women, especially city residents, as full-time farm workers. Their resistance to the employment of women has been reduced as a result of their experience with Women's Land Army workers and the need for replacement of skilled men who have gone into the armed forces.

The establishment of a reservation age of 25 years for male agricultural workers subject to the draft served to exempt many between the ages of 25 and 30.

In addition, increased wage rates to male farm workers eased the great movement of farm labor to the munitions factories.

II. Organization

Members of the Women's Land Army, although State recruited, work for the most part for private employers. The force is a mobile one consisting of women not previously employed in agriculture who have volunteered for services on the land during the period of the war and are ready to accept employment in any part of the country where their services are required.

The Land Army is organized as a section of the Man Power Division of the Ministry of Agriculture and Fisheries and its Honorary Director is Lady Denman. In each County or other administrative area there is a Women's Land Army office with a salaried Secretary and in some cases small salaried staffs of Assistant Secretaries and County Organizers. At first there was a Committee for each County, but some of the smaller Counties have been grouped under single Committees while 2 or 3 Committees have been set up in some of the larger ones. The total number of County Committees is 95. In addition to these voluntary advisory committees of 8 members there are many voluntary helpers who act as the Land Army's village or district representatives.

Chairman of these Committees were appointed by the Minister on the recommendation of the Honorary Director after consultation with the Land Commissioners, the Chairmen of the War Agricultural Executive Committees, and other persons possessing local knowledge.

In all Counties the Chairman or some other member of the County Committee is a member of the County War Agricultural Executive

Committee. Thus, close contact is maintained between the Women's Land Army and the County War Agricultural Executive Committees.

Most agricultural placements are made by the local Employment Exchanges, which have files on regular agricultural workers in connection with unemployment and health insurance. The Labour Officers of the County War Agricultural Executive Committees work with them and often help provide additional workers.

The local Women's Land Army Committees interview and select candidates, arrange for training and issue of uniform, place members in suitable employment and keep in touch with them while on farms, working closely with a National Executive Committee. As a rule, the Committees are divided into Sub-Committees, each of which deals with a particular area of the county.

Regular members of the Land Army are enrolled for the duration of the war but in addition there is recruitment of seasonal workers, known as the Women's Land Army Auxiliary Force, who are prepared to work on the farms for at least 4 weeks in the spring, summer and autumn.1/

III. Expenditures

Provision for the Women's Land Army is made under the War Services appropriation for the Ministry of Agriculture. The only figures available are those given in the Sixth Report of the Select Committee on National Expenditure. Out of a total budget for war expenditures of the Ministry of Agriculture for 1939-40 of £ 1,559,013, 7.4% went for the Women's Land Army. In the 1940-41 estimate, because of greatly increased expenditures for agricultural machinery and ploughing-up operations as well as for the County War Agricultural Executive Committees, the Women's Land Army appropriation was only 2.4% of a total budget of £ 6,751,000. The details are given below.

	(Actual) 1939-40 £	(Estimated) 1940-41 £
Expenses of County Committees	14,142	36,000
Uniform and equipment	50,072	65,000
Training	49,968	55,000
Hostels	--	3,000
Contingencies	1,316	2,000
Gross expenditure	115,498	161,000
Receipts	83	3,500
Net expenditure £	115,415	£ 157,500

1/ Select Committee, Sixth Report

Receipts are due mainly to sales of supplementary articles of uniform and equipment.

Members of the County Committees are unpaid and the salaries of the paid staff are not high, in the opinion of the Select Committee.

IV. Selection and Enrollment

Applicants for enrollment consist of women and girls of all types, drawn from a widely varying field of trades and professions. Stenographers, saleswgirls, models, cooks, hairdressers, actresses, domestic workers, teachers and other professional women have all proved that they can succeed as workers on the land and can quickly adapt themselves to rural life.

Each applicant is interviewed by two Land Army representatives who satisfy themselves that she is physically and temperamentally suited to the work which will be required of her. In addition, she must be between the ages of 17 and 40, not previously employed in agriculture, and generally mobile. On the average, only 1 in every 3 applicants is considered suitable.

If regarded as suitable for enrollment at her interview, a volunteer must produce a staisfactory medical certificate and two references. She is then enrolled as a member but remains in her civilian occupation until she is called by the Land Army for training or employment.1/ She may specify which branch of farming she wants to undertake--general, poultry, dairy, or horticulture.

Recruits mobilized under the provisions of the National Service Act of December 1941 are not given a choice of the type of land work they like best. Their certification by County Agricultural Committees to various types of work is dependent on the local labor demands of a particular district and the adaptability of the individual girl to a certain kind of work.

V. Training

When recruitment was first opened, the proportion of applicants who already had some knowledge of farming was naturally high. For less experienced recruits, training courses had been organized even before the war and were attended by about 900 volunteers at their own expense. Since the outbreak of the war the Government has covered the cost of training.

Where necessary, one month's introductory training is given by the Land Army to its volunteers in any branch of farm work which they choose. This training is given either on an approved farm or market

1/ The Women's Land Army for England and Wales, British Information Service, April 9, 1942 (typewritten)

garden or at an Agricultural College or Farm Institute. Generally girls from industrial areas are sent to the Colleges and those from Country districts to the farms. Training preference is given to full-time mobile workers.

During their training members of the Land Army receive 10 s. a week and free board and lodging. The cost of training a girl for a month on a farm is about £ 6 and about £ 10 at a college, including in each case £ 1 for travelling expenses. More than half the girls are trained on farms.1/ The farmer is allotted a Government subsidy of 15 s. for housing and boarding each Land Army volunteer.2/

A typical day is: up at 6:30 A.M., work until breakfast at 7:45 A.M. Dinner is at noon, and where cows have to be milked late in the afternoon tea is at 3 P.M. The evening meal is at the end of the day's work.3/

In the initial training period, the primary object is to fit a Land Army recruit for the duties of general farming so that she may immediately perform duties as an assistant to regular farm laborers. Jobs such as tractor-driving, ploughing, thatching and dairying require more experience. In these fields it is sometimes several weeks or months before a Land Army worker may attain sufficient proficiency to actually replace a man, while in general farming and horticulture a girl may be able to replace the average farm-hand much sooner. Special training is not necessary for general field work.

Training on farms is regularly inspected by Land Army representatives and at the end of the training period the farmer submits a report on the progress of his trainee. If during training a Land Army volunteer shows herself unlikely to make a satisfactory worker on the land, her training is terminated and she is discharged from the Land Army. If she receives a satisfactory training report the Land Army proceeds to make arrangements to place her in employment.4/

If a girl has no job at the end of her month's training she may have a further month's training on a farm, the condition being that she will be employed at the end of that time if she is satisfactory. In that case the farmer billets her and the Government gives her the 10 s. a week pocket money.5/

1/ Select Committee, Sixth Report
2/ Britain's Land Girls Prove Their Worth, by Lady Denman (typewritten)
3/ Ibid
4/ Women's Land Army, British Land Bureau of Information, September 8, 1941
5/ Britain's Land Girls Prove Their Worth, by Lady Denman (typewritten)

VI. Wages

The employment of members of the Women's Land Army, as of other agricultural workers, is subject to the requirements of the Agricultural Wages Act, under which County Agricultural Wages Committees determine minimum wage rates to be paid to agricultural workers in their areas. In the early days, however, as women's agricultural wage rates varied considerably from area to area, and as members of the Women's Land Army, drawn from all areas, both urban and rural, are required to be available for work in any part of the country, which may be some distance from their own homes, it was considered essential to lay down a minimum wage.

The figure chosen for this purpose, for those 18 and over, was 28 s. for a working week of up to 48 hours, plus 7 d. an hour for hours worked in excess of 48. For those under 18 the minimum wage was 22 s. 6 d. Since the rise in county minimum wage rates the Women's Land Army minimum has been raised to 38 s. (or 18 s. where board and lodging is provided) for those 18 and over, and 32 s. (or 14 s., where board and lodging is provided) for those under 18. Special hourly rates are paid for overtime and Sunday work.1/

There is no legal sanction attaching to the payment of this wage, as there is with the minimum wages laid down by Agricultural Wages Committees. But farmers who wish to employ members of the Women's Land Army are required to agree to do so on a weekly basis (and to pay at least this wage if the statutory minimum is less) so as to guarantee weekly earnings sufficient to cover living costs irrespective of weather conditions. Where minimum wage rates determined by Agricultural Wages Committees for women agricultural workers are above the Women's Land Army minimum rate, the county minimum rate is the lowest that can be paid. As a rule, women's wage rates are 3/4 of those paid to male workers. There is no maximum rate for any agricultural worker.

Members of the Women's Land Army Auxiliary Force are also subject to county rates, but in their case the employer is required to agree to employ on a weekly basis and to pay to a worker 18 or over at least 28 s. for a working week of up to 48 hours.2/

VII. Conditions of Employment

Holidays. Holidays for agricultural workers are necessarily a matter for arrangement between the worker and the individual employer and can only be arranged at a time when work permits. Employed members of the Land Army have at least one-half day a week, an occasional week-end and one week or longer during the year. The Women's Land Army meets the cost of journeys home every six months for volunteers who are working more than 20 miles away from their homes.3/

1/ Women's Land Army, British Information Service, (typewritten)
2/ Select Committee, Sixth Report
3/ Women's Land Army, British Land Bureau of Information, September 8, 1941

Insurance. Members of the Land Army whild in training and when in employment are insured under the State Insurance schemes as regards health and unemployment. Like other agricultural workers, they are covered under the Workmen's Compensation Act against risks of accident occuring in the course of their employment.1/

Should a land girl become ill, the farmer, if he wishes to retain her, will provide board, lodging and an allowance covered by national insurance. If not, he will pay her a week's wages and the Land Army will maintain her until she can resume work.2/

Promotion. As the members of the Land Army are employed by private individuals, a system of promotion is not possible, although where volunteers are employed in gangs, one of them is usually selected to act as forewoman. There are no ranks, but the girls may be promoted to more responsible work and higher wages.

Good Service badges in the shape of a half-diamond badge for every six months of satisfactory service are awarded by the Land Army.

Billets. Members of the Women's Land Army are sometimes accomodated by the employer on the farm where they work, sometimes in village billets nearby and sometimes in hostels from which they go out to work on farms in the neighborhood.

Living in the farmer's own household has not proved too satisfactory and has not been encouraged by the Women's Land Army organization.

In Scotland, girls are generally housed in hutment camps, with 20 girls lodged in each camp. Separate dining and recreation rooms are provided with radio and games and a woman warden who cooks, directs the girls' general welfare and takes care of their living quarters.

Some of the girls have taken over a house or part of a house, with members of their own units rotating as cook and housekeeper.

In several districts the Government has built hostels because of the difficulty of finding enough private and convenient lodging places for the girls. These facilities have been found to be the most practical and satisfactory kind of accomodations. They are built in two standard designs for the accomodation of 50 and 30 girls. In most instances the building are pre-constructed and delivered to sites in units for immediate assembly on pre-laid concrete foundations. Each hostel is composed of three blocks--a dormitory block, and "ablution" block (consisting of linen room, drying room baths, showers and lavatories) and a welfare block.

1/ Women's Land Army, British Land Bureau of Information, September 8, 1941
2/ Women's Land Army Helps Feed Britain, by Winifred C. Cullis

composed of dining rooms, recreation rooms and infirmary. All essential furniture is supplied, including mirrors, bookcases, rugs and cleaning materials.1/

VIII. Uniforms

A free uniform is provided consisting of the following articles of equipment: Overcoat, oilskin, overall or milking coat, breeches, pullover, shirts, dungarees, stockings, shoes and boots, gumboots, felt hat, armlet and badge. Uniform renewals are made at regular intervals.2/

IX. Welfare

The voluntary district and local representatives of the Women's Land Army are responsible for the inspection of billets where members of the Land Army are to be accommodated and for the regular visiting of employed volunteers and employing farmers in their neighborhood. Every employed member of the Women's Land Army is in touch with the Land Army representative to whom she can turn in case of difficulty.

The county office of the Women's Land Army helps to organize social activities for volunteers in the county in the form of clubs, occasional parties, and competitions in milking, general farm work, beet singling, potato planting etc. County rallies are held from time to time when Good Service badges are awarded. Village representatives often keep open house one day a week or one day a fortnight for employed Land Girls in the vicinity.

There is a Land Army magazine, "The Land Girl", issued monthly which describes the different types of work undertaken by land girls and describes Land Army activities in various parts of the country.3/

X. Types of Work Performed

The work of Women's Land Army volunteers is limited to small farms requiring 1 or 2 temporary workers and to farms specializing in fruit-growing, dairying or poultry-raising, where the farmer finds it difficult to secure experienced male labor.

The greatest demand has been for dairy workers, especially during 1939 and 1940, with emphasis on the promotion of increased milk production. But this organization has demonstrated that a surprising variety of farm work can be performed by women. In addition to milking and dairy work, Land Army volunteer jobs include care of livestock, field work, harvesting, threshing, tractor driving, ploughing, harrowing, preparation of seed for planting, picking and packing fruit, and gardening.

1/ "Housing for Britain's War Workers", Bulletins from Britain, February 11, 1942
2/ The Women's Land Army for England and Wales, British Information Service, April 9, 1942
3/ The Women's Land Army for England and Wales, British Information Service, April 9, 1942

Tractor drivers must be at least 5' 5", while girls with long sensitive hands are generally considered as above-average milkers. Other girls may be better suited to horticultural work. Hedging, ditching and clearing the ground preparatory to plowing operations are as a rule performed by women working in mobile gangs of 20 or more.1/ In a few instances, gangs of Women's Land Army members have assisted in the reclamation of moorland areas preparatory to the planting 1942 season crops.2/

There are about 150 girls doing timber cutting. After a short period of preliminary training at a forestry camp in Suffolk they are sent to various parts of the country. They fell the trees and cut the logs into pit props. A handful of specially selected workers have been trained as "measurers" and are doing the difficult technical job of measuring up and calculating how much timber each tree will yield.3/

Afforestation--the planting and cultivation of young trees--is another branch of land work undertaken by the Women's Land Army.

No member of the Women's Land Army may be assigned to domestic work.4/

1/ Britain Today, August 1941
2/ British-American Agricultural News Service, March, 1942
3/ Britain's Land Girls Prove Their Worth, by Lady Denman (typewritten)
4/ The Women's Land Army, British Land Bureau of Information, September 8, 1941

September 25, 1942

THE WOMEN'S LAND ARMY

The Women's Land Army, now over 50,000 strong, is proving a valuable supplementary labour force in field, forest and garden. The Hon. Director is The Lady Denman.

Volunteers from the cities with no previous experience of land work are now seasoned farm hands. There are few jobs they cannot undertake and their employment ranges from milking and the care of livestock to tractor driving and all forms of field work. An increasing number are employed in gangs under the direction of the County War Agricultural Committees for land reclamation, threshing operations and pest destruction. Others work in market gardens, and a special section, known as the Women's Timber Corps, is engaged in timber production, which includes the lopping and cutting of timber for pit props.

Age Limits for enrollment are 17-40. Every member must give an undertaking to work in whatever part of the country she is needed and for as long as her services are required. A minimum wage is guaranteed and a month's preliminary training is provided where necessary. Welfare is supervised by the Women's Land Army District Representative, who inspects billets and visits volunteers employed in her neighbourhood at regular intervals.

Pay: A minimum of 18/- is guaranteed after board and lodging have been paid for a 48-hour week. Overtime is extra.

Uniform: Green woollen pullover; fawn corduroy breeches; fawn woollen stockings; fawn shirts; fawn hat; green armband with letters W.L.A. in red; brown shoes; fawn greatcoat.

About one dozen items issued coupon-free, including the above, on joining. Volunteers also receive permits to the value of 53 coupons to cover purchases of underclothing (definitely specified thereon). After twelve months' service various items are replaced.

These notes bring the attached Information Paper up to date.

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THE WOMEN'S LAND ARMY.

Work on the land is a form of national service of vital importance in the war effort. Thousands of additional workers are required and the Women's Land Army has been recruited to help to meet this need. The Women's Land Army is a mobile force consisting of women not previously employed in agriculture who are ready to accept employment during the period of the war in any part of the country where their services are required. The organization is under the control of the Ministry of Agriculture and Fisheries and its Honorary Director is the Lady Denman, D.B.E. The enrolment, training and placing in employment of volunteers is undertaken by Women's Land Army County Offices which are under the direction of Women's Land Army County Secretaries advised by Women's Land Army County Committees and working in close touch with the County War Agricultural Executive Committees.

Women's Land Army volunteers are employed in all branches of land work including dairying and the care of livestock, general farm work, tractor driving, hedging and ditching, field work and horticulture both in market gardens and private gardens devoted to vegetable cultivation. In addition, a certain number of volunteers are employed in forestry.

There are now over 16,000 members of the Women's Land Army plus about 2,000 in Scotland in regular employment on the land. Many of these are working for private employers, others are employed by the County War Agricultural Committees and some by the Forestry Commission.

More volunteers are needed - women between 18 and 40 who are really strong physically and prepared to give full time service for the duration of the war in any part of the country where they are required.

Compulsory registration is having a beneficial effect on the flow of recruits to the Women's Land Army as to the other Women's Services. Women of registration age are joining the Women's Land Army either because in the opinion of the Ministry of Labor interviewers they appear suitable and are consequently advised by the interviewers to enrol on this Service, or because they are anxious to find work of national importance prior to registration. It is not every applicant for enrolment, however, who is accepted as the result of her interview at the Land Army Office. There are always two interviewers and great care is taken to see that candidates for membership are the type physically and tempermentally who will settle down on the land. In this way the Women's Land Army is endeavoring to ensure that there shall be a minimum of misfits and failures after enrolment. It is not an exaggeration that on an average only one in every three applicants is considered suitable for enrolment.

Members are given:- (1) A free uniform consisting of green jersey, fawn breeches, mackintosh, overall coat, fawn shirt, dungarees, stockings, shoes or boots, gumboots, brown felt hat, armlet and badge.

(2) If necessary a four weeks' training at a farm or at a training center.

(3) Free travel to training and/or employment; also to home and back to employment after every six months' service on the land for volunteers working more than 20 miles from home and subject to the employer granting leave of absence.

The wages of members of the Women's Land Army vary according to the County, but in no case does a Land Army volunteer of 18 or over earn less than 32/- for a 48-hour week, or if she is billeted at the farm house, a net cash wage of less than 16/-.

Where a girl is not billeted in the house of her employer she is billeted privately in a neighboring house or cottage or in a hostel with other land girls. The billet is inspected by a representative of the Women's Land Army and care is taken to see that the cost does not leave her in an unfavorable position compared to the Land Army girl billeted in her employer's house. It is intended to house certain groups of girls in the hutments which are being erected for agricultural workers in many parts of the country and these will supplement the private hostel or billet.

Welfare is particularly watched; advice and assistance in personal difficulties are given to every volunteer by the Land Army County Secretary and by the Land Army's District Representatives who also help to establish friendly contacts between volunteers living in the same locality.

A Good Service Badge is awarded to volunteers for every six months satisfactory service on the land. This badge is in the form of a half diamond which can be sewn on the armband. The Women's Land Army can now boast a considerable number of volunteers who are proud to wear three half diamonds and some who have just earned the right by serving since war began to two whole diamonds.

From time to time Counties organize Land Army Rallies, which are attended by members of the Farming Community as well as by the land girls. These Rallies provide a valuable opportunity for the officials both in the County Offices and at Headquarters to get to

know the individual members of the force and the occasion is often taken to present Good Service Badges to those who have earned them. In addition to Land Army Rallies, Counties arrange from time to time, competitions in milking, general farm work, beet singling, potato planting, etc. The competitions are often organized in districts, semi-finalists competing at the end for a challenge cup or some similar trophy.

FARMERS' AND GIRLS' OPINIONS.

8th March, 1941.

A farmer in X, Yorkshire, said he had three girls who were able to plough and go with two tractors, and could do more than some men did. The girls he had were "toppers."

6th February, 1941.

A farmer in Gloucestershire said, "We have two permanent workers on this farm and I 'take off my hat to them both.' They have never yet complained, nor once hesitated to tackle any job given to them to do, and are always on time in any weather."

February, 1941.

A Staffordshire farmer who employed land girl twins said, "No words of mine can fully express my complete satisfaction and admiration for what they are doing for me here. Any farmer who has a Land Army girl as good as either of them is indeed fortunate."

2nd January, 1941.

A Land Army volunteer said "I have been here over a year now and am getting more and more interested in my work, and am given more responsible jobs. I suppose I am helping my country, but I am certainly enjoying myself too."

December 10, 1940.

A Land Army volunteer in Cambridgeshire said "I love working here; I have also learned to milk, although I must confess I still like looking after the pigs the best. I now have to work a steamer to cook potatoes for the pigs. I cook 15 cwt. a day. I manage the boiler very well. This is another new job I have learned. I also have lovely lodging and I am very happy."

A Staffordshire Land Army volunteer said, "I do wish the Land Army every success, as I am so keen and happy, although for the last few days we all have gone home drenched, but still smiling."

The Land Army's monthly magazine, THE LAND GIRL, is published privately and sold at 3d. a copy, containing contributions from Land Army members, news from the Counties, competitions, correspondence, etc.

MEMBERSHIP OF THE WOMEN'S LAND ARMY.

-Requires-	-Gives-
Physical strength and endurance	A healthy life
Personal initiative	Freedom after working hours
Adaptability	Fresh knowledge and new friends.

DH3

September 8, 1941.

THE LAND ARMY

Daily Mail - July 21, 1942

THE STORY OF 40,000 WOMEN

by

MONTAGUE SMITH

This is the story of the girls who this year are going to bring England's harvest home - the Women's Land Army - of whom most of us know so little and to whom we all owe so much.

This Army is now 40,000 strong. A year ago it numbered only 14,000. It has doubled in the past six months, and recruitment is now at the rate of 1,000 a week.

The best recruiting centres are Yorkshire, Lancashire, and London, and the recruits who on the whole turn out the best Land Girls (though, indeed, they come from all classes and careers) are shop assistants. This, the officials tell me, is because they are accustomed to standing and the physical strain of the new work is less severely felt.

UNVARNISHED TRUTH

What happens to Sally Brown, shop girl or stenographer, mannequin or manicurist, when on or before her "call-up" she expresses a "choice" for the Land Army?

She may be of any age between 17 and 42, and if she appears a likely candidate she will be sent first by the local Employment Exchange to the nearest district office of the W.L.A. where experienced (but voluntary) women interviewing officers will tell her of the hardships and difficulties of the work she may have to undertake. They strip the job of all its glamour, and if Sally still wants to join they decide whether she is a suitable recruit.

It is a well picked army. Only about one in every four girls who apply is ultimately chosen.

If Sally is one of them she will then have issued to her free the Land Army uniform - two pairs of breeches, three shirts, dungarees, six pairs of stockings, two pairs of shoes or boots, one pair of gum boots (or specially strong boots and leggings), a hat, a green pull-over, an overall coat, and a Land Army armlet and badge.

She must be ready to go to any part of the country. She may go direct to work on some farm, or may first go for a short course of four weeks at a training centre where she may learn such things as fruit spraying, pest extermination (rabbits, rats, and moles), forestry, or other special agricultural work.

From there she will probably take employment directly under one of the County War Agricultural Committees, and become in every sense a mobile unit of the Land Army, the committees sending her on special duties to help farmers in need.

There are Land Army girls in caravans going about the counties spraying fruit trees; there are "flying columns" of pest destructors; others engaged in land reclamation schemes, and so on.

If Sally goes to live and work on a farm, she will not be sent there, even at the farmer's earnest request, until the local officers of the Land Army are convinced from personal inspection or experience that the accommodation available for her and the conditions of work are satisfactory. Sally, from a town girl's point of view, may certainly have to "rough it", but it must be a healthy sort of roughness.

Sally will now be paid the county agricultural rate of wages for her work. These rates vary, but the absolute Land Army minimum is 38s. ($7.60) for a 48-hours week, with overtime at the rate of 9d. (15¢) an hour. From this the expenses of her keep may be deducted, but when this is done Sally may be certain of having at least 18s. ($3.60) a week to spend on herself, and possibly much more, for she can, by permission of her officers, change her job if she is offered more money on another farm.

She will have to work in all weathers, on all sorts of jobs, clean or dirty, back-breaking jobs, at first, many of them. She will have to work long hours, seven days a week if need be; to live in remote spots, often far from any shops or places of amusement; she is only entitled to one week's holiday on full pay in a year; she will often be tired, cold, wet, and "Browned off."

But in time she will get to like it all. She is one of those lucky ones who see the products of the work of their hands and know it is good. She is an essential factor in winning the war.

TUNE IS CHANGED

At first farmers were shy of employing Land Girls. "They couldn't be any good," was the grumble. Now it is the other way. It is the pride of the Land Army that they can do almost any job on a farm that a man can do. And the farmers are finding this is true. Without them now many fields would be untilled, many crops ungathered.

Many Land Girls have now become the wives of farmers or of farmers' sons. From a great number of others, so I am told at headquarters, comes the saying: "Even when the war is over we are never going back to work in the towns and cities again. It is to be the open-air life for us."

And that is a good thing for the future of England.

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Schroeder - WMC 3406-7 PM-4704

WAR MANPOWER COMMISSION

For Immediate Release
Wednesday, November 1, 1944

Cleared and Issued
Through Facilities of the
Office of War Information

There is a critical shortage of women workers in the 12 major plants producing radar tubes, the War Manpower Commission said today.

WMC officials said they had been informed by the War Production Board that tubes were the "bottleneck" in the lagging radar program. A need for additional workers has been developing for months, but did not become acute until September, when the 12 plants reported 2,100 separations, chiefly women. The percentage of women in the plants is from 75 to 80 per cent. The work is comparatively light and working conditions are excellent, two factors that have served to attract women, WMC said. The plants made only minor restrictions as to age and physical abilities to encourage the employment of women.

Recently, however, women have been leaving in increasing numbers. The majority, in giving their reason for leaving, say they have home duties or merely that they are tired of working, WMC said. Battle successes have made them over-optimistic, WMC said.

Radar is on the production urgency List, the agency pointed out, and it is vital to victory. The services of these women are still desperately needed, WMC said. The loss of women workers has been made doubly serious by the additional loss in September of students and teachers returning to school.

Total employment in the 12 plants on October 1 was 25,600 and of these 20,100 were women. WMC officials said that an additional 3,300 workers must be found by December 1 if radar production is to be brought up to schedule.

The plants are situated in New Jersey, Kentucky, Massachusetts and Pennsylvania, but not all are in tight labor areas. Inter-regional recruitment is not entirely practical since the need is for women. As a rule, women do not always find it possible to leave their home areas.

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ADVANCE RELEASE ADVANCE RELEASE

Waldron - WMC 3406-7 PM-4628

WAR MANPOWER COMMISSION

ADVANCE RELEASE:
For Tuesday Morning Papers
July 18, 1944

Cleared and Issued
Through Facilities of the
Office of War Information

The War Manpower Commission, through its Procurement and Assignment Service, in cooperation with the American Red Cross, has launched a campaign to recruit at least 8,500 nurses for the U.S. Army and U.S. Navy, WMC Chairman Paul V McNutt announced today.

The nurses, the WMC chairman said, will be recruited at the rate of 1,000 a month for the Army and 500 a month for the Navy, until a total of 5,500 have been recruited for the Army and 3,000 for the Navy.

Mr. McNutt said most of the nurses needed by the Army and Navy will be drawn from lists of nurses maintained by State committees under which nurses are "classified" on a voluntary basis as "available" for military service "after giving consideration to essential civilian services." A portion of the required number of nurses will be recruited from the U.S. Cadet Training Corps sponsored by the United States Public Health Service.

The nurses to be recruited for the Army are within the quota of nurses announced in May of this year, Mr. McNutt said. In planning the invasion of France, the Army found it necessary to speed up the recruitment, he said.

Mr. McNutt pointed out that it is possible to recruit the required number of nurses for the armed services without handicap to civilian services since there are approximately 170,000 nurses in active civilian service and 112,300 student nurses in training.

"If we are going to meet the needs of the Army and Navy it will be necessary for us to use the skills of nurses as effectively as possible," said Mr. McNutt. "The success of our nursing program depends in a large part on the cooperation of the nursing profession. In addition, we must have the cooperation of physicians, hospitals and patients to prevent waste of professional skills. It is important that we use these skills to the best advantage. We must see to it that our fighting men have the nursing attention every American family wants them to have.

"It is particularly important that nurses who are available for service with the armed forces volunteer for such service."

The WMC chairman said approximately 50,000 nurses are now serving with the Army and Navy. Almost 8,000 of these nurses were obtained through WMC's Procurement and Assignment Service in cooperation with the American Red Cross since January 1, 1944.

(over)

The nurses will be recruited at a time when they will have the advantage of being appointed with actual army rank instead of the relative rank which they have held prior to this time. An executive order signed by President Roosevelt on July 12 gives nurses in the army the full authority of their officer rank. Previously nurses could not claim dependency allowance and upon retirement received only benefits attached to their permanent rank rather than being permitted to retire in grade. In addition, their commissions were granted by the Surgeon General with the approval of the Secretary of War instead of by the President.

END OF ADVANCE RELEASE: For TUESDAY MORNING Papers, July 18, 1944.

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A D[illegible] C E RELEASE ----- ADVANCE RELEASE

McFall -- WMC 3406-7 PM-4620

WAR MANPOWER COMMISSION

ADVANCE RELEASE:
For Friday Afternoon Papers
June 30, 1944

Cleared and Issued
Through Facilities of the
Office of War Information

Completion of local plans in every State to put into effect tomorrow the War Manpower Commission's order that beginning July 1 all male labor must be hired through the U. S. Employment Service or such channels as it may designate, was announced today by Chairman Paul V. McNutt. This national program, he explained, results from the setting up of a nation-wide system of manpower priority referrals to give war industries the labor they need.

Women as well as men have been brought under the priority referral system in many communities, Mr. McNutt said. He explained that in extending the system to women, regional directors have acted under authority given them by headquarters to adapt the program to local conditions and requirements. In some cases the application of the hiring restrictions to women affects only those in critical occupations.

Certain areas in the following States also require that women be hired through USES or its approved channels: Connecticut, Massachusetts, New Hampshire, Rhode Island, New Jersey, Delaware, Ohio, Florida, Georgia, Mississippi, Tennessee, South Carolina, Nevada, Oregon, Arizona and California.

With the field machinery set up along new lines, WMC will intensify its recruitment of workers, Chairman McNutt said. The priority referral plan with its provision that employers do all their hiring through the designated channels, will, the Chairman believes, make it possible to bring about the transfer of many workers from less-essential to essential industries and from areas where there is a surplus of labor to those where the obtaining of labor has become a serious problem.

The 12 regional directors have reported to headquarters the naming of local manpower priorities committees with responsibility for determining what priority, if any, an industry, or business establishment, shall have in hiring workers. Wherever administratively possible, a committee has been set up to handle the situation in each area. In a number of regions this has not been found practicable and in such cases one committee will act for two or more areas, Mr. McNutt said.

In New York City, which has a labor surplus, the regional director has departed somewhat from the national pattern in establishing the priority referral plan. There the plan will be applied only to less-essential employers of four or more employees. These employers may not hire male workers between the ages of 18 and 45 except upon referral by the local office of USES.

The Manpower Priorities Committee, already established in New York City will determine priorities for essential firms. Plans have been made for a special recruiting program for additional male workers channeled through USES.

(over)

Employment ceilings have been established in Group I and II [illegible]rties, in which labor is scarce. In many communities such limits on employment already had been fixed. Mr. McNutt explained that considerable latitude has been given the field men in limiting employment. The chief concern of headquarters, he said, is that the ceiling be fixed on male labor but in some cases the local officials have applied them to women as well as to men.

In all communities ceilings for major war production employers are established on the basis of the minimum number of workers required to insure required production.

Other ceilings vary according to local conditions and requirements. (In some communities the number of workers allowable at a plant is the number on the payroll on June 1. In other cases the June 30 payroll is the determining factor and in others the number employed on dates earlier than June have been taken.)

These ceilings, Mr. McNutt explained, are expected to maintain employment at present levels or even to lower the level where practicable by limiting replacements.

Regional directors have assured headquarters, Mr. McNutt said, that consultation of WMC officials and members of local management-labor committees preceded action on every phase of the program. Every action taken, he reported, has the endorsement of the management-labor group which, in turn, represents the local employers and workers.

Mr. McNutt emphasized that success of the priority referral plan will be determined by effort in the field and that the field operations will be supported by headquarters at every point. He said the National Priorities Committee recently established in Washington will function precisely as do the local committees except that it will determine priorities for inter-regional recruitment.

The membership is practically the same as that of the National Committee. Area committees include representatives of WMC, the War and Navy Departments, War Production Board, Selective Service, Maritime Commission, Smaller War Plants Corporation, Aircraft Resources Control Office, War Food Administration, Office of Defense Transportation when there are transportation problems and Civil Service if government employment is an important factor.

The entire program, Mr. McNutt said, has the endorsement of the National Management-Labor Policy Committee.

Both employers and employees will have the right of appeal from any decision of local officials of WMC, Mr. McNutt said. It has not been necessary to set up new appeals units since such machinery has been in existence since the early days of WMC.

As an indication of the importance of placing employment ceilings on industries in the tight labor market areas, Mr. McNutt said there are now in these areas 79 per cent of the nation's munitions industries. Exactly what proportion of the workers of the country are found in plants located in such areas has not been determined but in war munitions throughout the country there are employed 9,700,000 workers of whom 2,700,000 are women. These totals, he added, do not include the men and women engaged in many other essential industries and necessary services.

Specific communities in which the Priority Referral System has been extended to apply in one way or another to women are:

Region I - (Maine, New Hampshire, Vermont, Connecticut, Rhode Island, Massachusetts) -- Bristol, Conn.; Meriden, Conn.; New Britain, Conn.; Waterbury, Conn.; Springfield, Mass.; Claremont, N.H.; Portsmouth, N.H.; Providence, R. I.

Region II - (Pennsylvania, Delaware, New Jersey) - Newark, N.J.; Wilmington, Del.

Region IV - (District of Columbia, Maryland, North Carolina, Virginia, West Virginia) -- District of Columbia, Baltimore, Md. -- women released from essential and locally needed only.

Region V - (Kentucky, Michigan, Ohio) -- Adrian, Mich.; Dayton, Ohio; Springfield, Ohio; Lima, Ohio; Monroe, Mich.; Sidney-Piqua-Troy, Ohio; Youngstown, Ohio.

Region VII -(Alabama, Florida, Georgia, Mississippi, South Carolina, Tennessee) -- To women except Tampa, Fla; Jacksonville, Fla.; Jackson, Miss.

Region XII - (Arizona, California, Nevada, Oregon, Washington) -- California and Oregon: women in critical occupations.

In Region VIII women have been included in 45 areas, or an estimated one-half of the region.

ADVANCE RELEASE: For FRIDAY AFTERNOON PAPERS, June 30, 1944.

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Collins - WMC 5436-7-1 PM-4593

WAR MANPOWER COMMISSION

For Immediate Release
Wednesday, May 31, 1944

Cleared and Issued
Through Facilities of the
Office of War Information

Appointment of Nelson H. Cruikshank, of Raleigh, N.C., as Assistant Vice Chairman for Labor Relations was announced today by War Manpower Commission Chairman Paul V. McNutt. Mr. Cruikshank, who succeeds Miss Charlotte E. Carr, resigned, will continue to act as executive assistant to the National Management-Labor Policy Committee, a post he has held since he went to WMC in April, 1943.

A native of Fostoria, Ohio, Mr. Cruikshank was graduated from Ohio Wesleyan University and Union Theological Seminary. His earlier experience included direction of relief activities of the Brooklyn, N.Y., Federation of Charities and American Federation of Labor work in Connecticut, where he was in charge of the Workers' Education School at New Haven. He entered Federal Government service in 1936 as labor relations representative of the Resettlement Administration in the South. In 1939, he came to Washington to take charge of migratory labor programs for the Farm Security Administration. In 1942, he served in the Office of Labor Production of the War Production Board.

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X-30121

War Manpower Files

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

May 5, 1944

Mrs. R. F. Nyswander
United States Department of Labor
Women's Bureau
Washington, D. C.

Dear Mrs. Nyswander:

In compliance with your request, I am pleased to forward you herewith six copies of the history of the Women's Advisory Committee compiled in January.

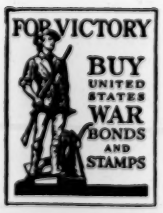
For your information, this history will be brought up to date in about another month.

Very truly yours,

Virginia Price

Virginia Price
Executive Secretary
Women's Advisory Committee

Enclosures



File

War Manpower

WOMEN'S BUREAU
APR 11 1944
DEPARTMENT OF LABOR

WAR MANPOWER COMMISSION
WOMEN'S ADVISORY COMMITTEE

REVISED AGENDA

April 11 and 12, 1944

Social Security Building

Tuesday, April 11, 1944 -- 10:00 a.m. (Executive Session) - - - - Room 5440

Tuesday, April 11, 1944 -- 11:00 a.m. - - - - - - - - - - - - - - - Room 5440

Mrs. Frances W. Trigg, Special Agent, War Production Training of Women, Office of Education - "Women Counselors in Industry"

Tuesday, April 11, 1944 -- 2:00 p.m.

Sub-Committee meetings

Community Facilities and Services, Mrs. Dunbar, Chairman - - - - - Room 5440

Public Relations, Miss Bloodworth, Chairman - - - - - - - - - - - Room 5353

Post-War Planning, Dr. Franklin, Chairman - - - - - - - - - - - - Room ___

Wednesday, April 12, 1944 -- 9:30 a.m. (Executive Session) - - - Room 5440

Report of the Executive Director

Wednesday, April 12, 1944 -- 11:00 a.m.

Mrs. Ethel M. Wood, Honorary Secretary
British Parliamentary Womanpower Commission

*30 17th, Pa. Ave. 5440
2 + Mgr.

Wednesday, April 12, -- 2:00 p.m., (Executive Session) - - - - - - Room 5440

Reports of Chairman of Women's Advisory Committee and Chairmen of Sub-Committees

ADOPTED BY THE WAR MANPOWER COMMISSION, JULY 29, 1942

POLICY ON EMPLOYMENT OF MARRIED WOMEN WITH YOUNG CHILDREN IN INDUSTRY

The expansion of the war production program, as well as the increasing requirements of our armed forces, necessitates the maximum utilization of our labor resources. In many areas the lack of adequate housing and transportation facilities compels full use of the local labor supply. These considerations make it necessary to employ large numbers of women in gainful occupations useful to the war effort. Steps are already being taken to provide for the recruitment and training of additional women. Prospective war production schedules indicate that this program will have to be considerably expanded and intensified. In carrying out this program for utilization of women workers, it is important that to the maximum extent normal family life be preserved and maintained.

To promote that end, and to promote the effective mobilization and maximum utilization of the Nation's manpower in the prosecution of the war, the War Manpower Commission hereby declares the following basic policies:

I. The first responsibility of women in war as in peace is to provide suitable care for their young children.

II. Before special efforts are made to draw into the labor market women with young children, full use should be made of all other sources of labor supply.

III. Barriers against the employment of women with young children should not be set up by employers. The decision as to gainful employment should in all cases be an individual decision made by the woman herself in the light of the particular conditions prevailing in her home.

IV. Whenever it becomes necessary to recruit or employ women with young children for work in essential activities, it is essential that

(a) women with young children be employed at such hours and on such shifts as will permit adequate care of their children.

(b) adequate facilities be provided to care for the children of such women during working hours. Such facilities should be developed as community projects and not under the auspices of individual employers or employer groups.

War M... files

OFFICE FOR EMERGENCY MANAGEMENT

WAR MANPOWER COMMISSION

WASHINGTON, D. C.

Chairman
PAUL V. McNUTT
FEDERAL SECURITY ADMINISTRATOR

May 5, 1944

Mrs. R. F. Nyswander
United States Department of Labor
Women's Bureau
Washington, D. C.

Dear Mrs. Nyswander:

In compliance with your request, I am pleased to forward you herewith six copies of the history of the Women's Advisory Committee compiled in January.

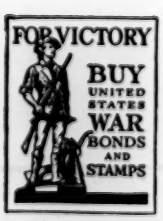
For your information, this history will be brought up to date in about another month.

Very truly yours,

Virginia Price

Virginia Price
Executive Secretary
Women's Advisory Committee

Enclosures



Price--WMC 3442 PM-4522

WAR MANPOWER COMMISSION

For Immediate Release
Wednesday, February 16, 1944

Cleared and Issued
Through Facilities of the
Office of War Information

Women's clubs and organizations today were asked by the National Women's Advisory Committee of the War Manpower Commission to aid in recruiting women in all the areas of employment in which they are now needed. WMC estimates that by July 1 the nation's working force of women will reach the record total of 18,700,000 or 900,000 more than were employed in July, 1943.

Pointing out that women's corps of the various armed services are falling far short of their enlistment quotas, and that many thousands of women also are needed in areas of labor shortage, the Advisory Committee meeting in Washington today urged women's organizations to undertake the recruitment job as a major war effort.

Miss Margaret Hickey, committee chairman, in making the request, advised the women's organizations to gear their efforts to the employment needs and patterns of the WMC areas throughout the nation. Each organization taking part in the recruitment effort will be urged to tie its program to that of the local office of the WMC's United States Employment Service. This will avoid duplication of effort as the USES knows when and where women are needed and had full knowledge of the types of employment that are open, the chairman said.

"All planning and operation of these campaigns should be done in cooperation with the local offices of USES," Miss Hickey said.

"This can be done most effectively by establishing overall community womanpower committees, composed of women experienced in employment fields and having knowledge of community problems which affect employment. These committees can perform a vital war service by conducting educational programs which will bring into the labor market women who lack confidence in themselves, who are unwilling to do the jobs for which they are most needed or who simply fail to understand that in many communities there is great need for their service.

"Many women in labor shortage areas are confused because they hear that women are being displaced from war production in some other areas where labor is more plentiful. Completion of contracts and other causes are causing partial displacement of women workers in some areas and in some lines of employment. This may mean the need for woman labor will decrease in some areas, but the need for such help will continue to increase in the nation as a whole.

"It is unfortunate that women are not always available where they are most needed. In areas where war production is centered and in which labor shortages naturally exist, community facilities such as housing, transportation, medical and child care are so overburdened as to make it undesirable to bring in more new workers.

(over)

"These local womanpower committees, working in close cooperation with government agencies, can do much to encourage many women in such communities to make up their minds that they must enter the local labor market. If local women go to work in areas of labor shortage they will make it unnecessary to import more help and thus add to the problem of overcrowded communities," Miss Hickey added.

The Women's Advisory Committee has just released to national organizations of women a pamphlet, "The Wartime Responsibility of Women's Organizations." It sets forth the need for forming community committees of women, especially in areas of labor shortage and special employment problems.

#

U. S. DEPARTMENT OF LABOR

WOMEN'S BUREAU

To—		*From—*	*Re Attached Please—*
	Anderson.		Approve
	Nienburg.		Comment
	Larrabee.		Note
	Benham.		Note and return
	Dern.		Reply
	Erickson.		Draft of reply
	Hyde.		Signature
	Manning.		Would like to discuss
	Mettert.		File
	Pidgeon.		
	Robinson.		Date
	Smith, F.		Note:
	Spring.		
	Stitt.		
	Files.		

GPO 16—24460

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1942 JUL 18 PM 7 51

Form 16

LA502 RXP GA100 11 GOVT COLLECT=WP PITTSBURGH PENN 18 1041A

MISS MARY ANDERSON DIRECTOR=

WOMENS BUREAU US DEPT OF LABOR (WASHINGTON DC)=

Ry

=UNLESS OTHERWISE NOTIFIED SHALL STOP PHILADELPHIA ARRIVING WASHINGTON MONDAY AFTERNOON=

EMME F WARD.

Dermatitis
Field trips to
Machine Shops

Emma Ward

1942

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU

To—		From—	Re Attached Please—
	Anderson.		Approve
	Nienburg.	✓	Comment
	Larrabee.		Note
	Benham.		Note and return
	Best.		Reply
	Erickson.		Draft of reply
	Files.		Signature
	Hyde.		Would like to discuss
	Manning.		File
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✓	Pidgeon.		Date
	Robinson.		Note: I wanted to
	Smith, F.		that you m/
	Spring.		had them
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	Stitt.		Yorks plants

GPO 14—3769

WOMEN'S BUREAU
DEPARTMENT OF LABOR

U. S. DEPARTMENT OF LABOR

WOMEN'S BUREAU

WASHINGTON

College Club, 143 N. Craig St,
Pittsburgh, Pa
Jan 15, 1942.

Miss Mary Anderson, Director,
Women's Bureau, U.S. Dept of Labor,
Washington, D.C

My dear Miss Anderson:-

The Fort P.H. Bedding Co, 18 and Rivers-
ford St was evidently the plant referred by the Pennsyl-
vania Department. In there were several cases of dermatitis.
The company suggested that I confer with the dermatol-
ogists to whom the cases had been sent. a plant at
Coraopolis, just outside Pittsburg was suggested by the der-
matologists, but there had only been a few cases - from
paint - among men. Women were not employed at the
plant in any but clerical positions.

The McKinney Mfg Co (hard-
ware) was also visited. Mr Russell of this company
said they had an excellent medical department,
no dermatitis and no one could go into the
plant without a letter from the War Department.
I hardly seems worth while to request this, since
there were no cases.

I have a few other suggestions
that I shall try in the next day or two.
I should like to stop at Philadelphia on the
way to Washington and confer with Dr Kingsley.
I was asked by several dermatologists in
the west if I had talked to him

Yours sincerely,

Emma F. Ward

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON

College Club
143 N. Craig St
Pittsburg, Pa.
July 13. 1942

WOMEN'S BUREAU
JUL 15 1942
DEPARTMENT OF LABOR

Miss Mary Anderson, Director
Women's Bureau,
U. S. Dept of Labor,
Washington D. C

My dear Miss Anderson: I went out to McKees Rocks this morning and searched the village, but there is no Fort Pitt Bedding Co. there. There is such a place at 1800 Liverpool St Pittsburg, and I shall go there: a mistake may have been made in the address.

I checked with the Mellon Institute of Industrial Research, but Miss Hoose has the only firm they could suggest, and that is not to be included in this study. So I shall get some suggestions from whatever source I can find.

Yours sincerely.
Emma F. Ward.

WOMEN'S BUREAU
JUL 13 1942
DEPARTMENT OF LABOR

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON

P. Hsburg, Pa
July 11, 1942

Miss Mary Anderson, Director,
Women's Bureau,
U.S. Dept. of Labor,
Washington, D.C

My dear Miss Anderson, - Please change address from Wm Penn Hotel to

College Club
143 N. Craig St
P. Hsburg, Pa

Sincerely yours
Emma F. Ward

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON

Statler Hotel,
Detroit, Michigan,
July 9, 1942.

Miss Mary Anderson, Director,
Women's Bureau, U.S. Department of Labor,
Washington, D.C.

My dear Miss Anderson:

I am sending under separate cover the interviews and pamphlets from Detroit. The interview with the manager of the Milburn Co was very interesting. He certainly seemed very much surprised that anyone besides Dr. Schwartz would go into the subject of dermatitis. He had just come back from Washington after an interview with Dr Schwartz.

I am planning to take the night boat to Cleveland arriving in the morning and leaving the same day for Pittsburg, where I shall stop at the Wm Penn Hotel, if I can secure a room. I shall wire myaddress on arrival.

I am inclosing a copy of a circular , given to me at the Electric Auto-Lite Company by Mr. McKibben. He thinks it is going to be difficult in the future to go thru plants without approval from the local ordnance office or from Washington.

Sincerely yours,

Emma F. Ward

Emma F. Ward

DEPARTMENT OF LABOR

Rept of Goby b/recd 9/2
with schds

No. 203

GPO

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON

U.S. WOMEN'S BUREAU
JUL 7 - 1942
DEPARTMENT OF LABOR

Toledo, Ohio,
July 5, 1942.

Miss Mary Anderson, Director,
Women's Bureau, U.S. Dept. of Labor,
Washington, D.C.

My dear Miss Anderson:

The following plants were visited in Toledo: Electric Autolite (?) Doehler Die Casting Co ✓ Spicer Mfg Co ✓ the DeVilbiss Co ✓ Since the Cleveland Ordnance ~~Dept~~ office would not grant permission to go thru the City Auto Stamping Co, where only a comparatively small number of women were employed, this plant was not visited.

Return visits will be paid Monday to one or two plants, where additional information had to be obtained, or people seen, who have been away. Probably Tuesday morning, I can leave for Detroit. Address Hotel Statler Detroit. I shall wire after arrival, since traveling is difficult and one cannot always secure a room even when writing ahead.

In accordance with special delivery, air mail letter, I shall arrange a conference with Dr McCord and unless there is an unusual plant to visit, go on to Pittsburg before returning to Washington, July 15th at latest.

If the necessary records have not been received from Nat. Screw Mfg Co, I shall make a stopover at Cleveland. The plant was visited, and records promised.

Sincerely yours,
Emma F. Ward.

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON

Commodore Perry Hotel,
Toledo, Ohio
July 1, 1942

Miss Mary Anderson, Director.
Women's Bureau,
U.S. Department of Labor,
Washington, D. C.

My dear Miss Anderson, - I went to Doehler Die Casting Co to-day and the Personnel Director asked the Creal Army official for permission to go thru the plant. He made out the pass at once, and there was no difficulty.

For the metal plant - City Auto Stamping Co; employing 30-35 women. I do not think it is worth while going to the trouble of obtaining permission from the Plant Securities Division in Washington, of the Ordnance Dept.

I shall take a couple of other plants, after interviewing the representative

from the Industrial Commission, Dr. James, ~~Dr James~~ dermatologist and other authorities.

I shall probably go on to Detroit the end of the week and write the address to the office. As I understand it, I am to visit a few plants there. Yours truly,

Emma F. Ward

July 2, 1942

Miss Emma F. Ward
Commodore Perry Hotel
Toledo, Ohio.

Dear Miss Ward:

We are glad to have your letters of June 30 and July 1, and also the bunch of schedules you sent in. The idea in going to Detroit was especially that you wanted to confer with Dr. Carey McCord and not so much for the purpose of visiting plants there, although there would be no objection to your doing so if there is something particular that he suggests.

I believe you have not mentioned the National Screw in Cleveland, and that was one of the companies on the list that had reported the largest number of dermatitis cases last year.

The Pittsburgh firm for you to visit is the Fort Pitt Bedding Company, McKees Rocks, Pennsylvania. You need not delay in order to meet Mrs. Mettert in Pittsburgh because she has to go first to Ohio and is still waiting for the authorization to visit the firm that she needs to see there.

I think it best for you to plan to come back in the office by the 18th or 20th in order to give yourself about two weeks here, since we shall want you to write a report showing the conditions you are finding in regard to dermatitis among women, the specific causes, and specific recommendations for remedies.

It might be well to plan the time so that you could stop again in Cleveland if you did not visit the National Screw, and then allow yourself some time for Pittsburgh. There are no other suggestions as to plants in Pittsburgh, so that you can be guided there by the general rules you have had for this particular study. However, do not go to Westinghouse as we shall have to visit that plant for another purpose.

Sincerely yours,

Mary Anderson, Director

AIR MAIL
SPECIAL DELIVERY

MEP:ld

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON

WOMEN'S BUREAU
JUL 2 - 1942
DEPARTMENT OF LABOR

Commodore Perry Hotel,
Toledo, Ohio.
June 30, 1942.

Miss Mary Anderson, Director,
Women's Bureau
U.S. Department of Labor,
Washington, D.C.

My dear Miss Anderson,- I visited the Elec Auto Lite Co (1)
yesterday. Mr Pound Superintendent of the Plant said
"Shouldn't you have a letter from the War Department?"
I explained that I had been three plants in Cleve-
land, without any letter, so I was taken three the fact-
ory, except in the restricted areas.

To-day I went to the City Auto Stamping Co, and they informed me they had received strict orders to let no one go there without permission. Mr Watson, Personnel Director, telephoned long distance to Cleveland Ordnance Office and asked for permission, saying that he was convinced it was all right, but was told, the Women's Bureau would have to obtain written permission from the Plant Securities Div. Chief of Ordnance. Washington, D.C.

I did not visit the Ordnance office in Cleveland at all, since I found no difficulty - not even a question - in any of the plants.

I shall go to Hoehler Die Casting Co., and if they also require permission I shall write the office to-morrow. There are 35 women employed at City Auto Stamping Co.

I have an appointment for to-morrow with Mr. James to whom the Electric Auto Lite Co. (?) send their dermatitis cases, and they suggested that I might like to talk to him about the dermatitis situation. He may be able to suggest other plants. He may also know the situation in the City Auto Stamping Co. plant and it may be possible to omit this plant and take others, if it is possible to gain access to them without the Washington authorization from the Ordnance Dept.

I shall also get my expense account in return the next day or two

Yours sincerely,

E Ward

Ernest E Ward
Asst Economic Analyst

U. S. DEPARTMENT OF LABOR

WOMEN'S BUREAU

WASHINGTON

WOMEN'S BUREAU
JUN 30 1942
DEPARTMENT OF LABOR

Cleveland, Ohio.,
June 25,1942.

Miss Mary Anderson, Director,
Women's Division,
U.S.Department of Labor,
Washington,D.C.

My dear Miss Anderson:

I am attaching a list of supplies to be sent to the Commodore Perry Hotel, Toledo,Ohio.

I am including with this letter the write-up of Republic Steel Corporation. They have been most cooperative and when I admired their dispensers said they would be glad to have some pictures made, and I went back to get them to-day. If pictures of this type are desired of various excellent methods in use in a plant in reducing hazards, I shall be glad to get similar pictures from other places.

I had all my notes in shapeto dictate when I returned to the office but upon your request to have all plants written up at once, I managed to secure a type-writer and finish them in this form. I expect to complete them to-morrow and send the rest in to the Washington office. One or two plants still have material to furnish me, which they promised to compile.

I was fortunate enuf to have a very satisfactory interview with the dermatologist Dr Driver who is on the committee for Industrial Dermatoses of the American Medical Association.

The East Technical High School here was extremely gracious in going over their machines with me and also arranging for me to have a conference with one of their practical teachers in the Defense Training Course who has worked on practically all machines at Warner and Swazsey, in Cleveland, and who went at length into the problems of machinery and the various kinds of cutting oils and water soluble oils involved. The question of guarding was also taken up in detail. The Cleveland Trade College was also visited.

There were certainly very few cases of dermatitis found in Cleveland.

Yours truly,

Emma F. Ward

Emma F. Ward

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON

Cleveland, Ohio,
June 22, 1942

Miss Mary Anderson, Director,
Women's Bureau,
U.S. Dept. of Labor,
Washington, D.C.

My dear Miss Anderson:

When I returned from Canton, I found your air mail letter of June 19th. Apparently it did not come any faster - if as fast - as regular mail. If it had had a special delivery stamp, it would have been delivered on Saturday, when there is only one delivery, in the morning.

I am very glad the study is to be continued. It is rather difficult to accomplish the results desired, when there is so much emphasis on haste.

I left Cleveland at 7.30 A.M this morning and returned at the same time to-nite from Canton. The Timken Roller Bearing Company was on my list, and since there were more cases listed than almost any other plant, I was anxious to include it. By omitting lunch and checking records while the asst. welfare director was at lunch, I succeeded in finishing the plant to-day.

I shall remain in Cleveland and write up all schedules, and then go to Toledo, Ohio. Since there is a little more time, I shall also try to see one or two dermatologists, who have been called on cases, by the factories, in Cleveland.

When I leave for Toledo, I shall wire the office.

Sincerely yours,

Emma F. Ward

STANDARD FORM No. 14
APPROVED BY THE PRESIDENT
MARCH 10, 1926

TELEGRAM

OFFICIAL BUSINESS—GOVERNMENT RATES

FROM Mary Anderson, Director

BUREAU Women's Bureau, Labor Department

CHG. APPROPRIATION Salaries and Expenses

U. S. GOVERNMENT PRINTING OFFICE 10—1723

MISS EMMA F. WARD
COMMODORE PERRY HOTEL
TOLEDO, OHIO

JUNE 22, 1942

IF WOMEN WORKING IN SMALLER OR OLDER OHIO PLANTS, YOU MIGHT FIND CONDITIONS LESS FAVORABLE. EXTENSION YOUR TIME PERMITS YOUR CONFERRING WITH DR. MCCORD, DETROIT AFTER TOLEDO VISITS BEFORE RETURNING HERE. KEEP US INFORMED WHERE TO REACH YOU. OUR DETROIT LABOR SUPPLY REPRESENTATIVE MRS. KATHLEEN JENNISON LOWRIE, 4317 GLENDALE, DETROIT.

MARY ANDERSON, DIRECTOR

NIGHT LETTER
MEP:ld

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON

SECRETARY'S TREASURE
JUN 22 1942
DEPARTMENT OF LABOR

Cleveland, Ohio,
June 20, 1942

My dear Mrs Mettert, - The Job Descriptions for Job Foundries arrived, and I shall cherish it carefully. I had no trouble with any factory in Cleveland. They seemed delighted to have me go thru their plants. I talked to some people at the Y. W. C. A. to-day, and they said their girls who worked at Perry Cab & Screw Co. (?) Cleveland complained of pimples on the thighs and skin generally from the "soda water". I am not finding as many cases of dermatitis as I expected to discover from past history. I plan to go to Canton on Monday and return to Cleveland at night, going on to Toledo the next day. I could easily do this additional plant and go on to Toledo in the late afternoon, if you like me Monday or Tuesday. My address in Toledo will be Commodore Perry Hotel. I shall return to Washington from Toledo. Sincerely yours

Emma Ward

June 19, 1942

Miss Emma F. Ward
Goodrich House
1420 East Thirty-First Street
Cleveland, Ohio

My dear Miss Ward:

I am glad to tell you that in conference yesterday with the director of the Wage-Hour Division, it was agreed that they will allow us to keep your services for another month at this time. This being the case, I suggest that you continue with Toledo as planned and then go to Canton, taking the Timken Roller Bearing Company which was originally on our list.

Please keep us informed as to where you will stay in Toledo and in Canton so that we can communicate with you. The chances are that after that you may be joining Mrs. Mettert in the Pittsburgh area, but we shall have to let you know about that when War Department authorization comes through.

I suggest that you send in your schedules to us immediately at the close of visits in each town so that we can keep them in hand currently.

Please send us at once the schedules for the four Philadelphia plants visited, parts of schedules you have on two Baltimore plants, the schedules taken in Cleveland, and reports from any other interviews you may have had there. We are glad to receive the material sent us from New York and Cleveland.

Sincerely yours,

Mary Anderson, Director

AIR MAIL

MEP:ld

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON

June 17, 1942.

Miss Mary Anderson, Director
Women's Bureau,
U.S. Department of Labor,
Washington, D.C.

WOMEN'S BUREAU
JUN 18 1942
DEPARTMENT OF LABOR

My dear Miss Anderson, - I received my check today and appreciated very much having it sent by air mail.

I am inclosing a very badly typed but legible copy of Dr Schwartz's paper, which has not been published - but which was loaned to me by Mrs Mayer, and Mrs Mayers comments on her article. She collected and sent me to me reprints of her articles, which I am including.

There is also inclosed a copy of the Safe Practice Pamphlet # 44 of the National Safety Council which Mr Westbrook of the National Screw & Mfg Co. Cleveland (?) had made for me, and on which he noted his approval of the items he thought feasible.

Yours very truly,
Emma F. Ward

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON

WOMEN'S BUREAU
JUN 15 1942
DEPARTMENT OF LABOR

June 13, 1942

(Clipping Enclosed)

My dear Elizabeth,- I sent Sunday writing up the Dr Mayer interview, and shall get it off to you shortly with the article loaned to me, which I copied in longhand. The article was long, but the interview short, since she insisted everything had been said in the article.

I walked out on a strike first thing this morning at the Cleveland Graphite Bronze Co, but I see in the paper it has been settled, so can go there the plant later.

Yours sincerely,
Emma F Ward

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION (09)

1201

A. N. WILLIAMS
PRESIDENT

NEWCOMB CARLTON
CHAIRMAN OF THE BOARD

J. C. WILLEVER
FIRST VICE-PRESIDENT

SYMBOLS
DL = Day Letter
NT = Overnight Telegram
LC = Deferred Cable
NLT = Cable Night Letter
Ship Radiogram

1942 JUN 12 PM 2 10

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

WE67 13 COLLECT=CLEVELAND OHIO 12 137P

MISS MARY ELIZABETH PIDGEON=

WOMENS BUREAU U S DEPT OF LABOR =

ADDRESS HOTEL STATLER TONITE LATER GOODRICH HOUSE 1420 E 31ST ST CLEVELAND=

ERNIE WARD.

Emma

1420 E 31ST ST.

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

July 1, 1942

Messrs. D. H. Kelly, B. A. Fay, W. V. Flood, L. F. Middleton

C. W. Adams	L. E. Koos
H. Bissell	L. B. Murphy
W. H. Daney	R. Nicholson
J. B. Fenner	E. H. Reed
W. R. George	J. A. Shank
H. E. Hassemeyer	J. D. Wilsey
	L. N. Kehr - Res. Ord. Insp.

Attached you will find a copy of the letter from the War Department, signed by Colonel H. M. Reedall, Deputy District Chief of the Cleveland Ordnance District, which is self-explanatory.

C. W. Ford
Plant Manager

JSMcKibben/cjc

O
P
Y

WAR DEPARTMENT

Cleveland Ordnance District
1006 Terminal Tower
Cleveland, Ohio

June 29, 1942

Electric Auto-Lite Company
1127-1461 Champlain Avenue
Toledo, Ohio

Attention Mr. Claude W. Pound, Production Manager

Gentlemen:

Attention is invited to the fact that since the beginning of war there has been a change in War Department policy applying to the release of information regarding Ordnance contracts, locations of Ordnance plants, and other pertinent information which, if released, may be of value to the enemy.

Ordnance Department contractors, subcontractors, and those facilities assigned to Ordnance for plant protection purposes will therefore be governed by the following restrictions. The necessity of strict compliance is obvious to all concerned.

1. Refrain from publication of photographs and drawings of Army equipment which have not been released by the War Department. (Release of photographs and drawings of Army equipment may be obtained after review and approval by the War Department, Bureau of Public Relations, Washington, D. C., and all material should be submitted directly to that agency.)

2. Refrain from referring in advertising, to the location of a plant, and to specific products being manufactured in that plant.

3. Refrain from the publication of the names of subcontractors or accessory manufacturers to a prime contractor.

4. Release no production figures, nor figures indicating total number of employees, backlog of orders, or area of land occupied. (Obviously other Government agencies will require information of this nature from time to time. Those requests will be referred to the Cleveland Ordnance District for

determination of the legitimacy of the request and the district office may permit the release of such information, when necessary to the proper functioning of suppliers of labor, material, facilities, and other services.

5. Do not permit aerial photographs of plants.

6. Observe these restrictions in radio programs and other publicity, including financial statements, reports, and public discussion.

Very Sincerely,

Signed: H. M. Readall
Colonel, Ord. Dept.
Deputy District Chief

Miss Pistgim:

This plan is OK. I find that many plants do not have 'plant protection' at all. Can be used freely.

Your list of species will be considered your list & those plants will not be visited by other W.B. agents.

B. M. N.

Jan 8th

RESEARCH DIVISION

June 8, 1942

MEMORANDUM

To: Miss Nienburg

From: Mary Elizabeth Pidgeon and Margaret T. Mettert

Subject: Progress in Study of Dermatitis Hazards to Women

Reports made to Miss Nienburg June 6th (verbally, by Mrs. Mettert)

Information as to dermatitis hazards and controls has so far been obtained by:

1. Visits to 5 plants, and conferences with health authorities, in the environs of Baltimore, by Mrs. Mettert and Miss Ward.

2. Conferences by Miss Ward with health authorities in New York City.

3. Conferences by Mrs. Mettert and Miss Ward with Pennsylvania State health and accident officials in Harrisburg, and visits to 6 Philadelphia plants.

Plans Agreed to:

1. Miss Ward to continue plant visits in Philadelphia, returning to Washington Tuesday night, June 9th.

2. Plants in all cases have been selected as follows:

   a. By conference with State authorities or from records as to dermatitis hazards.

   b. Plants not recently visited by Women's Bureau (according to Women's Bureau card record).

   c. Plants for the most part making small metal parts but not machine tools.

   d. In addition, the plants that have been visited are for the most part either (1) Putting on new or enlarged forces of women or (2) Old plants now expanding that may not have up-to-date conditions.

3. Plants to be visited at once as selected from Ohio records of actual dermatitis cases in Cleveland and Toledo. (These plants have been checked with Women's Bureau list and have not been visited recently by Women's Bureau agents.) These cities to be covered as promptly as possible by Miss Ward, so that she can have time to visit plants reported by Pennsylvania authorities as having dermatitis hazards, in Pittsburgh, returning to Washington by June 28th at latest.

4. This study will not delay in all cases for War Department clearance, but judgment will be exercised in the field as to method of procedure. For example, (1) Visits to plants as usual by Women's Bureau agents; or (2) Contact with district ordnance authorities may be more rapid and satisfactory where these local authorities do not hold off for instructions from Washington. (In such cases, skip that plant, send its name to the Women's Bureau, and proceed with other plants.)

5. Visits to large numbers of plants are not so important in this study as is concentration on particular plants that may show causes of dermatitis, and conferences with health authorities who can indicate effective control.

Miss Emma Ward

DC Office — Cleveland — Toledo

Fri June 12
Sat June 13

Mon 15 – Mon 22
(8)

Tue 23 – Thu 25
(3)

Sat 27, all morning
Mon 29
Tue 30

No. 204

GPO

DEPARTMENT OF LABOR

Miss Emma Ward —
Phila – return to be in DC office all day Fri June 12 / Sat " 13
Cleveland June 15 – 22 (Mon)
Toledo – June 23 (Tue) – 25 (Thu) (3 days)

Return to be in DC office all morning

May 26, 1942

MEMORANDUM

To: Internal Security Division
Office of The Provost Marshal General
Headquarters, Services of Supply
War Department
Washington, D. C.

From: Women's Bureau
U. S. Department of Labor

Subject: Plant clearance for employees in Philadelphia and Lancaster, Pennsylvania

The Women's Bureau is undertaking an investigation of conditions under which women are working in private war contract plants in Philadelphia and Lancaster, Pennsylvania, with a view toward securing data on specific hazards to women in war plants, due to (1) use of toxic agents, and (2) machinery. To this end, it is requested that the following industrial experts be given clearance from May 28 to June 10 in the plants listed herein.

All representatives are loyal citizens of the United States and are equipped with identification cards conforming to your minimum standards for visitors to war production plants.

Emma F. Ward - May 28 - June 10 - Philadelphia, Pa.
S. K. F. Industries
Crown Can Co.
DeLong Hook and Eye Co.
Philadelphia Insulated Wire Co.
Leeds and Northup Co.
Henry Disston and Sons
Proctor and Schwartz
Yale and Towne Mfg. Co.

Margaret T. Mettert - June 1 - 4 - Lancaster, Pa.
Armstrong Cork Company
Specialty Screw Machine Products Co.
Hamilton Watch Company

MEP:LW

May 26, 1942

Re: Mrs. Mettert's and Miss Ward's Study of War Dermatitis and Other Injury Records

May 19 - 22: Mrs. Mettert and Miss Ward were in Baltimore. They visited five plants and copied accident and injury records for women. Only one case of dermatitis was found. The conferred with Industrial Hygiene people. The plants visited included trips to Sparrows Point and Towson.

May 23: Mrs. Mettert and Miss Ward were in the office.

May 26: The following plans were made: Miss Ward is to leave Washington at the close of May 27, first visiting New York to confer with Industrial Hygiene people, then returning to Philadelphia.

From a list of plants furnished by Miss Smaltz with number of men and women employed, plants were selected for visiting on the following basis:

1. Machinery and metal plants, omitting machine tools.
2. Omitting plants recently visited by Women's Bureau, including arsenals.
3. Plants that had considerable numbers of women, or that appeared to be such as were converting and taking on women.

In all, a list of about 10 plants in Philadelphia was sent by Miss Wendt to the War Department for clearance.

At the same time, two plants were included in the list sent to the War Department in Lancaster, Pennsylvania. Names of these plants were furnished by Mrs. Morrow and the same criterion of selection was used. These plants are to be visited by Mrs. Mettert between June 1 and 4 en route to a meeting where she is to speak in Harrisburg.

These plans were discussed with Miss Nienburg over the telephone and approved by her. Miss Nienburg suggested not going to York, Pennsylvania, at this time, where an additional listing had been furnished by Mrs. Morrow, but that Mrs. Mettert should discuss these plans further with Mrs. Morrow since they probably were all preparing parts for gun assembly in a cooperative scheme.

It was thought wise that Miss Ward should return to Washington after her Philadelphia visit with the possibility of later going to Pittsburgh and various cities in Ohio. Miss Ward has obtained a list of plants in Ohio from which cases of dermatitis recently have been reported. These include: Cleveland, 10; Toledo, 4; Mansfield, 2; 1 each in Springfield, Canton, Barberton, and Columbus.

C
O
P
Y

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF LABOR AND INDUSTRY
Harrisburg

May 20, 1942

Miss Margaret T. Mettert
Associate Industrial Economist
Women's Bureau
Washington, D. C.

Dear Mrs. Mettert:

I am sending you a list of plants in our vicinity where women are employed in large numbers. Most of these plants are working under our Rule G-15 which permits a 48-hour work week.

I have added to this list the three plants listed below - two in the Philadelphia area and one near Pittsburgh where we seen to have a noticeable accident rate. If you visit these three plants, I would be most interested in your findings and recommendations.

Keystone Adjustable Cap Corporation
10th and Washington Ave., Philadelphia
(Unguarded machinery - State prosecuting)
W. S. George Pottery Co.
West End, Canonsburg, Pa.
(Handling acids with unprotected hands)
Fleetwings, Inc.
Radcliffe Street, Bristol, Pa.
(Unguarded point of operation of punch presses)

If you wish desk space during the time you are working in this area, we will be very glad to assign to you a desk in our office for your own use.

Looking forward to seeing you June 5, I am

Very sincerely,

/s/ Mary Rice Morrow
Director of Women and Children
and Hours and Minimum Wages

APPROVED APPLICATIONS UNDER RULE G 15
LANCASTER DISTRICT

NAME AND ADDRESS	PRODUCTS
American Chain & Cable Co., Inc. York, Pennsylvania	Chains, Malleable Casing, Cranes, Hoists.
Armstrong Cork Company Lancaster, Pennsylvania	Shells and shell casing
A. B. Farquhar Co., Ltd. 142 N. Duke Street York, Pennsylvania	Hydraulic Presses - Special Machinery
Specialty Screw Machine Products Co. Dillersville Road Lancaster, Pennsylvania	Precision Instruments Parts
Standard Peizo Company W. Louther & Cedar Streets Carlisle, Pennsylvania	Quartz Radio Crystals
Steacy - Schmidt Manufacturing Co. York, Pennsylvania	Heavy Machinery
New York Wire Cloth Company 441 East Market Street York, Pennsylvania	Mesh Wire
S. Morgan Smith Company York, Pennsylvania	Hydraulic turbines, valves, & hoists
York Safe & Lock Company York, Pennsylvania	Anti-aircraft gun end mounts Guns and tanks.

Hamilton Watch Co. Lancaster, Pa.	?

Burlington Lines

Chicago, Burlington & Quincy Railroad Company
The Colorado and Southern Railway Company
Fort Worth and Denver City Railway Company
The Wichita Valley Railway Company

Burlington Route

547 West Jackson Boulevard
Chicago 6, Illinois

Velma Mc Peek
Supervisor of
Passenger Train Service
Office of Executive Vice President

2920

Ocotber 28th 1946

Miss Jennie Mohr
Associate Industrial Economist
U.S. Department of Labor
Women's Bureau
Washington D.C.

My Dear Miss Mohr:

It was so nice of you to come out to Chicago to address our group of Railroad women. We thot you were a splendid representative of your department and that your address was really fine. We all learned a great deal and we are happy to know more of the things you are doing for women in general and particular. We are very grateful to you and to your department head, Miss Freida Miller.

Besides that we are happy to know you personally. We enjoyed having you with our group and we hope to see you again sometime. Miss Foreman assured us we would be fortunate to secure you as a speaker and a friend and you have proved her judgment right again.

Thank you very much. Best wishes to you personally.

Sincerely,

Velma McPeek

NATIONAL ASSOCIATION OF RAILROAD WOMEN

MARGARET IRWIN, CHAIRMAN • ATCHISON TOPEKA & SANTA FE RAILWAY SYSTEM
VELMA Mc PEEK, VICE CHAIRMAN • BURLINGTON LINES

ISOBEL J. MASTERS, SECY. & TREAS.
ROOM 413, NEW YORK CENTRAL TERMINAL
DETROIT 16, MICHIGAN

Oct. 12, 1946

Miss Jennie Mohr,
Associate Industrial Economist,
Women's Bureau,
United States Department of Labor,
Washington 25, D.C.

Dear Miss Mohr:

I wish to take this opportunity on behalf of the National Association of Railroad Women of expressing our warmest thanks to you for the wonderful speech and valuable information given by you to our members at our Fall Meeting in the Palmer House on October 3rd.

I know that I obtained very helpful information and statistics from your speech and feel that I can speak for all members in saying they also obtained helpful statistics.

Sincerely hope that at some other time, not too far distant, we will all have the pleasure of having you will us again, not only to obtain information, but for the pleasure of having you with us.

Sincerely,

Isobel J. Masters

Secretary-Treasurer

October 17, 1946

Miss Wanda L. Myers
Southern Railway System
Passenger Traffic Department
Washington 13, D.C.

Dear Miss Myers:

I have received the copy of Mr. Kelly's speech and also Mr. Judd's, thank you. I am very glad to have them, especially to have Mr. Kelly's. I am very interested also in reading the account of the work in the Grand Central Terminal and I am only sorry I could not have heard Mr. Judd.

With best wishes, I am

Sincerely yours,

Jennie Mohr
Labor Economist

JM:kn

Southern Railway System

Passenger Traffic Department

Washington 13, D. C.

WANDA L. MYERS,
ASSISTANT TO GENERAL PASSENGER TRAFFIC MANAGER

October 11, 1946. E:1

Miss Jennie Mohr
Associate Industrial Economist
Department of Labor
Women's Bureau
Washington, D.C.

Dear Miss Mohr:

It was indeed a very great pleasure having you with us in Chicago and your talk was most enjoyable and enlightening.

We have attached a rough draft of it, which we wish you would edit for us - which is to go into the minutes of the meeting.

We must get together for lunch some day soon. Give me a ring when you have an opportunity.

Very sincerely,

Wanda L. Myers

Wanda L. Myers
Assistant to General Passenger Traffic Manager

Attachment: 1
Please return as soon as possible.

October 15, 1946

Miss Wanda L. Myers
Southern Railway System
Passenger Traffic Department,
Washington 13, D.C.

Dear Miss Myers:

Thank you very much for your letter of October 11. It was a pleasure to meet you again and to become acquainted with the other Railroad Women, with whom I enjoyed talking.

Since you want to put my talk into the minutes of the meeting, I am enclosing herewith a copy which I have prepared. I should like to suggest that you use this in place of the draft that you were kind enough to send me and which I am also returning herewith.

I notice that you have included a report on the questions that were discussed early in the afternoon. You will remember that the question that Mrs. Becker raised was concerned with women who went out on strike, as well as those who just stayed off the job. I should like to ask you to omit the statements attributed to me about "loyalty". You may remember I suggested that, first, strikes are an economic question rather than a question of loyalty and, second, that there is no difference between women and men strikers. If you want to put this discussion in I should appreciate it if you would substitute that comment for the one on page 2 of the report of this question.

I should certainly like to see you again and we must get together for lunch soon.

Very sincerely yours,

Jennie Mohr
Labor Economist

JM:KN

Miss Mohr

U. S. Department of Labor
WOMEN'S BUREAU
Washington, D. C.

Talk given by Jennie Mohr to the National Association of Railroad Women, - October 3, 1946. Palmer House, Chicago.

on

STANDARDS FOR THE EMPLOYMENT OF WOMEN

The work of the Women's Bureau is largely concerned with the establishing of good working conditions for women. The subject is broad -- it covers questions of occupational opportunities, economic security, and working environment. It deals with such matters as hours of work, wages, healthful and safe working conditions, job opportunities, legislative standards. I should like today to mention some of these standards, and to deal in a little detail with a few of them; in particular, to discuss the kinds of standards recommended and promoted by the Women's Bureau, how they are developed, and how they are maintained.

Before talking about standards, it may be well to mention briefly the role that women have played and are playing in industry, and therefore the significance of establishing standards for their employment. The war-time employment of women has, as you know, brought many of them into industries and occupations where they were not earlier employed. The changes in their work might be described as of three types: 1) their entrance into new industries and occupations - for example, into many of the jobs they worked on in the railroads during the war; 2) the expansion of work in which they are customarily employed - as in textiles, electrical equipment, food products, etc; 3) the transfer from one to another type of work - for example, many women left the textile mills or the service industries to go into airplane plants or shipyards.

The problem of bringing new women workers into industry varied with the industry. For example, in the apparel industry 3/4 of the workers were women before the war, and the proportion remained the same during the war. In the railroads, however, which is your industry, the women were about 8% of all the workers in April of 1945; and this figure represents an increase of about 83 percent over their employment in January 1943, when they were less than 5% of the workers.

Women went into the railroads during the first world war, as they did now. Their employment fluctuated during the years following. In 1940, 36,000 women were working on the railroads. During the second world war their number again increased sharply, and at the peak of the War, there were 116,000 employed on Class I Railroads. About 2/3 of these women were in clerical work and 1/3 in industrial work.

Whether in places which were long accustomed to them, or in places to which they were newcomers, the question of establishing standards for the employment of women is much the same. Actually, the war has served to accelerate the development of standards, but has not markedly changed the direction of their development. Since the beginning of the Industrial Revolution, the place of women's work has been changing. There has been a constantly increasing trend into factory, business, or other places of work, and a widening of areas in which women find employment. It is not valid to believe that with the rush of war demands over, women will disappear from the labor market. Before the emergency arose, in 1940, there were about 12 million women workers in this country. And judging from the normal expansion of the female working force, over 16 million might have been expected by 1950, even without the changes brought on by war. This trend is followed in your own industry, railroading, which is commonly thought of as a man's industry.

Where women have not customarily been employed there has, sometimes, been considerable resistance to them. One such place which we encountered during the war was in the shipyards, which were sometimes reluctant to employ women on jobs that had always been done by men. I recall one shop-master in a shipyard who assured me that women would be brought in, in his words, "over my dead body." The women did come in, however, but not over his dead body; and he eventually accepted the fact that they could do their job, and do it well.

Whether women are new on the job or old hands at it, the same basic wuestions of standards persist. In discussing this subject, here are three things to be stressed: First, standards are not stationary. They change and develop and increase with the experience of the workers and of their employers. Second, there are certain channels through which they are developed and established. Third, in many respects standards for women apply equally to men, though there are some distinctions which should be made.

First: what are these standards, and how do they change with time? Here are the most significant ones:

Hours of work: In the early days of industrial development it was considered something of a triumph to get laws cutting the length of the working day in factories down to twelve, or prohibiting the employment of children for more than ten hours a day. The twelve-hour day gave place to the 10-hour day. Now we have a widely accepted standard of 8 hours a day and 48 hours a week. Studies of fatigue of workers in relation to their health and to their efficiency have been of first importance in giving us knowledge of the effect of over-long hours of work, and have shown the inadvisability, on both personal and industrial grounds, of maintaining such hours.

Again, the question of the employment of women at night has been the basis for changing standards over the years. A quarter of a century ago there were many reasons for an ardent and persistent fight against night-work for women -- reasons involving conditions under which the work was done, facilities for the protection of women's welfare at night, special attitudes and customs, and opinions and beliefs relating to the effect of night-work on the health of women. In the course of time, some of these factors have changed, and consequently these standards are today being reconsidered.

Wage standards, also, have changed with time. The standard of living that can be maintained by a worker is determined by his earnings. Wages that permit a secure and healthful way of living are of great importance not only in terms of the individual's needs but also because they can be a measure of the national level of health and security. One of the basic requirements of an adequate wage standard must be set in terms of a minimum wage, which will establish a floor below which a worker's rate of pay does not go. A second requirement for a sound wage structure is the establishment of the principles of rate for the job and equal pay. This requisite is of extreme importance in view of the fact that many times women experience discrimination in their rates of pay simply because they are women; and that it has been well established that they do work equal to that done by men, and are therefore entitled to equality of pay.

I have mentioned briefly three types of standards relating to the employment of women. There are two more which I should like to talk about, which present somewhat different types of problems than the three I have already mentioned.

Safety standards for the employment of women present in one way a simpler problem than the standards on hours or wages. The issue of safety in industry is more unqualifiedly free of sex differences, in the opinion of most people in the field. It is relatively easy to get recognition of the idea that "safety", on the job, is the same for men and for women. In setting wage standards, very often, discriminatory practices are found which result in different, and usually lower, standards for women than for men. In the field of safety, plant practices are established without regard for the sex of the worker. The principle is widely held to, that a place that is <u>safe</u> is as safe for women as for men. The guarding of machines, the maintaining of good housekeeping practices, the training of workers for safety on the job, and the development of plant safety programs are carried on for all workers, and on the basis of the plant as a unit. There are, in practice, a few differences arising because of the sex of the worker, and because of such requirements as specific types of safety clothing, or physical limitations of individual workers.

The last type of standard I should like to mention is in the field of industrial health. The growth of industrial health programs has been phenomenal. The impetus given by the war, with the need to conserve the health of each worker, the use of new materials that might offer unknown hazards, the emergency nature of the conditions under which much work needed to be done, and the growing awareness on the part of both workers and employers of the importance of industrial hygiene, gave rise to a great increase in the activity of health committees and organizations within industry. Two aspects of this activity should be mentioned: First, the protection of workers against the hazards of their environment, and second, the maintenance of good general health standards.

It has become increasingly clear that there is no sharp line of distinction between health on the job and health off the job. The cold that lays a worker low, cuts off his wage, curtails his production, and creates absenteeism in industry, may be caught in the plant or out of it. An ill or disabled worker is unable to keep on the job, regardless of the source of his disability. Thus a good industrial health program must provide not only security against illness in the plant, through a thorough understanding of the health factors in the environment. It must also help the worker to maintain his own health.

For the maintenance of on-the-job health, industry has developed effective programs for the analysis of working conditions, such as lighting, heating, ventilation; protection against toxic fumes, gases, dusts, and other substances; maintenance of adequate medical services to handle illnesses and injuries occurring on the job; and programs of health education for the worker.

To help maintain off-the-job health, there is need for cooperation of plant medical personnel with community and public health agencies and services. The question has not been finally settled as to how much industrial practice should involve non-industrial health matters. The health of the worker as an individual in the community is a community rather than an industrial responsibility; and yet it is essential to know to what extent the occupational hazards to which a worker is exposed are responsible for illnesses that may arise.

So far I have been describing some of the standards with which we are concerned. A word at this point about the channels through which they are developed and maintained.

There are four ways in which standards for the employment of workers, and in particular of women, are developed:

First, through industry itself. Employers have become, on the whole, quite aware of the importance of removing plant hazards in the environment, protecting against occupational disease exposure, lowering accident rates and sickness absence. These factors are closely related to the efficiency of the worker, and of the production process of the plant. They affect the stability of the workers' output. Many employers have developed high standards for their own plants or industries. They have established in many instances medical services in the plants that are complete and effective, first aid or hospital units run by physicians and staffed with nurses. They have developed health and safety education programs, and organized health and safety committees representing both workers and management. They give safety training on the job, and pre-employment and pre-placement examinations in order to fit the worker to the work he can best do.

Secondly, through the workers. Workers also have become more aware of their responsibility in the matter of setting up good working conditions and maintaining good health standards. The work of unions has, in recent years, been outstanding in this field. Such programs as the Health Centers of the International Lady Garment Workers' Union, the Health Institute of the United Auto Workers, and the St. Louis Labor Health Institute are examples of the work of unions in providing health benefits and medical services for their members.

Thirdly, through legislation. The passage of Workmen's Compensation laws in all but one of the States had a marked effect on safety standards in industry. They established the responsibility of employers for injuries to workers while on the job, and were a considerable stimulus for providing

safety devices, improving plant structure, and otherwise eliminating the sources of accidents. The inclusion of occupational diseases under these laws, which has begun in recent years, acted similarly to stimulate employers to improve the health conditions in their establishments.

Workmen's Compensation laws are but one type of legislation that improves standards. Minimum-wage and equal-pay laws in a number of States, laws limiting the number of hours a worker may be employed per day or per week, also provide standards for employment. Another type of legislation is found in State laws which regulate or prohibit the employment of women in specified industries or occupations.

The fourth channel for the development of working-condition standards is through research and consultant agencies, both private and public. These agencies, through research, through industrial surveys, and through educational programs set up conditions which have been shown to be necessary in good industrial practice, act as consultants to both employers and workers, and provide reference material for the use of individuals working in this field.

Among the major agencies so functioning there are:

1 - Federal and State Departments of Health and Labor. The U. S. Public Health Service, The U. S. Bureau of Mines, the National Bureau of Standards, and the U. S. Department of Labor are the Federal agencies most active in the fields of industrial health and safety, and the last-named agency particularly in the broader field of economic security as well. State Departments of Health and of Labor, with their Industrial Hygiene Divisions, work not only to maintain and enforce legislation but also to assist private industry and workers in understanding their own needs and develop their individual programs.

2. Private organizations that are outstanding in establishing good working conditions in industry, analyzing hazardous exposures and eliminating sources of injury and illness, are such groups as the National Safety Council and the Industrial Hygiene Foundation of America. These organizations service their company members, make surveys of industry, compile statistics, act as consultants, and provide educational material in the fields of industrial hygiene and of safety. The American Standards Association is well known for its establishment of codes, or standards, covering many aspects of industrial safety. The American Medical Association, through its Committee on Industrial Health, also contributes greatly to the development of medical services and an understanding of industrial health problems among industrial physicians and nurses.

So far as we have talked for the most part about working conditions without too great emphasis on the special requirements of women workers. It seems clear that in some respects no special requirements exist. In the general fields of health and safety, emphasis must be put on making a place of work safe for everyone - then it will be safe for women. In the fields of wage standards, emphasis has been put on the need to guarantee the equality of women, and to provide a lower limit below which their wages will not fall.

What of the special needs of women for protection against specific hazards, or against dangerous or unsuitable work? This question has been the subject of much argument and discussion, and one on which opinion has changed considerably during the course of years. The question of whether women are especially susceptible to toxic substances such as lead or benzol, for instance, has been answered in a great variety of ways. Medical opinion has not been uniform on this matter, though in general the present tendency is toward the view that such special susceptibility has not been shown to hold true. The opinion is growing that in industry the position should be taken

that whenever exposure to such toxic substances exist, protective measures should be taken to prevent exposure from reaching the danger point. When this is done, all workers, both men and women, will be safe.

In the same way, special standards on such matters as weight-lifting have in the past been established for women. It is well known that, on the whole, women have less strength than men and cannot, generally, lift as heavy burdens. However, weight-lifting in excess is just as dangerous for men - and in fact, more men than women are injured in this way. Standards for weight lifting should first of all take into account the individual capacities of individual workers, and be so set that neither men nor women are subject to injury through excessive lifting.

There is certainly one area, however, in which special standards for women are a must. This is in relation to the biological differences between men and women - the function of women as child-bearers. In particular, the employment of women during periods of pregnancy requires special attention. Pregnancy in itself is not, of course, an industrial problem. But the employment of pregnant women is.

This question has two sides. On the one hand, care must be taken that the health of women and of their children is not endangered by the work they do. On the other, it must be remembered that the vast majority of women who work do so out of economic necessity; and this holds for those who continue their work during part of their pregnancy. For this reason, it is important that they are permitted to continue their work as long as they want and need to.

Thus we are faced with the necessity of establishing standards for the employment of pregnant women which will insure their safety and also insure them an opportunity to work. Such standards have been developed by the Women's Bureau and the Children's Bureau in the Department of Labor. They

have been widely adopted by employers, have been recommended by unions, and have been used by a number of government agencies responsible for the utilization of women during the war.

To summarize some of the ideas I have suggested concerning standards for the employment of women, I should like to point out:

First, that standards are not stationary, but they change and develop as our knowledge of working conditions and workers' needs changes.

Second, the basic idea behind standards for safety and health is that good conditions are necessary for everyone - men and women; and that a plant that is safe and healthy for everyone will be so for women.

Third, that the establishment of standards is necessary in order to insure employment opportunities for working women, eliminate discriminatory practices which act against the interests of women workers, and set minimum conditions for work.

Fourth, that there are four ways of developing such standards - through the programs of employers, the activities of workers in their unions, the development of legislation relating to standards, and the research and advisory work of governmental and private agencies.

Fifth, that protection against physical strains and hazards of exposure are needed for women, and are also needed for men.

Sixth, that special standards are necessary to protect women during periods of pregnancy.

Seventh, the number of women workers has been increasing and will continue to increase. They are entering into new fields and becoming more and more an integral part of the labor force. They are undertaking with greater awareness their responsibilities as workers. And this adds up to the fact that they must be recognized as workers equal with men, with equal opportunities and equal responsibilities. Experience has long shown that the women workers themselves increasingly recognize and respond to this need.

PROGRAM

NATIONAL ASSOCIATION OF RAILROAD WOMEN
PALMER HOUSE, CHICAGO, ILL.
OCTOBER 3-4, 1946

PROGRAM COMMITTEE

Grace V. Merrill, Chairman

Ioan Beckham Genevieve Beane

##

October 3rd-

Morning Session - 10:00 A.M. to 12 Noon.

Opening Remarks. . . . . Velma McPeek, CB&Q, Vice General Chairman.

Labor Management Problems. . . . . Miss Jennie Mohr, Assoc. Industrial Economist, Dept. of Labor, Women's Bureau.

What Railroads are Doing to Place Themselves Before the Public . . . . . Mrs. Kathryn Bargelt Special Representative, T. & T. Department, New York Central System

LUNCHEON

Chicago Room - Palmer House
12:30 PM - 2:00 P.M.

Afternoon Session 2:00 P.M. - 5:00 P.M.

Public Relations . . . . . George Kelly, Vice President - Pullman Co.

General Business Meeting . . . . . Helen Foreman
Reports on Committees, etc.

EVENING

Meet in Suite _____ 5-6:30 P.M.
Cocktails.

7:00 P.M.

We will be guests of Fred Harvey, Union Station, for dinner after which training film used by Fred Harvey will be shown in suite at Palmer House.

October 4-

Morning Session - 9:00 - 12 Noon.

Round Table Discussion. . . . . Wanda Myers, Southern Railway

Transportation Legislation Pending at Moment. . . . . Harold Sims, Director of Public Relations, Western Association of Railway Executives

LUNCHEON

Victorian Room - Palmer House
12 Noon - 2:00 P.M.

Afternoon Session 2:00 P.M. - 5:00 P.M.

Handling the Traveling Public in a Large Railroad Station. . . . . Frederick H. Judd, Asst. Engineer, Grand Central Term'l New York City.

Food Trends . . . . . Colonel Rohland Isker

ADJOURNMENT

U. S. Department of Labor
Women's Bureau
Washington

PATTERNS OF WOMEN IN INDUSTRY

Talk by
Miss Frieda S. Miller, Director,
Women's Bureau, U. S. Department of Labor
at
the Women in War Work session of
THE GREATER CHICAGO SAFETY CONFERENCE
Chicago, May 24, 1945

Introduction

During these past years of war, we have experienced striking changes in the whole employment picture as it affects women workers. As men have gone off to war, women have stepped in to fill the breaches left all along the way. A great many of them have left their peacetime fields to go into jobs traditionally held by men, and into industries that had few if any women workers prior to the war. In addition, several million new, inexperienced workers have joined the woman labor force to find places in war production, essential consumer industries, or other fields. Also swelling the ranks of our woman labor force have been many thousands of older women, even women who have left and who reentered the labor market to do their part in the country's time of need. By March of last year, these combined shifts in employment and in occupations had affected more than 8 million women, only 3½ million fewer than the total number of women actually working on the job in 1940, with the result that our 3½ years of total war have changed the pattern of women's industrial employment more rapidly and more basically than did any other times in our history.

For purposes of today's discussion I should like to consider the pattern of women in industry not as one gigantic pattern in bare outline, but one in which the various individual pieces are shown and properly related. These smaller pieces which constitute the whole and are of such importance to us are the occupational pattern, the safety pattern, the wage and hour pattern, the union pattern, and the seniority pattern. There are still other pieces, but these are the major ones that must be fitted into their right places as our Nation changes from a wartime to a peacetime economy. In our Women-in-War-Work session, we are interested in all these pieces of the whole picture, for all contribute to the welfare and progress of women workers. We are deeply concerned, however, with the occupational and safety patterns, for they more directly affect health and safety on the job than perhaps any of the others.

Occupational Pattern of Women in Industry

For information concerning the occupational pattern, I should like to turn to a Women's Bureau study which contrasts the picture of employed women the week before the Pearl Harbor attack with the situation in early March of last year.

In slightly more than 2 years, the period on which the survey is based, women's employment increased 36 percent, or from a little more than 12 million in December 1941, to nearly 16½ million in March of last year. Actually, during the period under study, 6½ million women entered the labor force, but another 2 million women withdrew from paid employment.

Where did this vast reservoir of woman power come from and into what channels of production did it find its way? Some 3,710,000 of the 6½ million new workers came from home housework, and 2,280,000 from school. The majority of both housewives and school girls went into manufacturing and into clerical work, with the services and sales groups next. By the spring of 1944, these new women workers constituted 43 percent of all women in manufacturing, and almost half of those in the major war manufacturing industries: metal and metal products, chemicals, and rubber. They also were 44 percent of the women in trade and 39 percent of those in transportation, communication, and public utilities.

Less spectacular than the new workers but forming the hard core of the women's labor force are the 9,830,000 women who were employed both before the Pearl Harbor attack and in early March, 1944. Some 85 percent of these women remained in their same major occupational group, but not necessarily in the same plant or even the same city. For instance, thousands of clerks and stenographers, still following their same occupations, left insurance offices, department stores, and other peacetime pursuits to work in the offices of factories, shipyards, ammunition plants, and so on. This same situation is true of women factory workers, for many of them left less essential manufacturing for employment in the strictly war group of manufactures.

As a result of these various movements within the women's labor force during war years, every single occupational group but domestic service has increased its total number of women employed. Manufacturing and clerical work show the greatest gains in numbers. In late 1943, women wage earners in all manufacturing had about doubled the prewar figures of 2¼ million and in the period from 1940 to early 1944, the group of manufactures including metal and metal-products, chemicals, and rubber products showed the enormous net gain in women's employment of more than 460 percent.

At peak employment, plants manufacturing ammunition for small arms and artillery had about a quarter of a million women factory workers. Late in 1943, nearly a half million women, three-fourths of whom were factory workers, were employed in airframe, engines and propeller plants. The week before Pearl Harbor, airframe plants had but 4,000 women engaged in factory work. In the shipyards, a traditionally masculine domain for which the 1939 Census showed only 36 women employed, a peak employment of 165,000 women wage earners was reached in December 1943. The electrical machinery-industry group, long a large employer of women, in February 1944 had 374,000 women wage earners as against 100,000 in October 1939. Today, some of these peak employments have scaled down somewhat, as has the November 1943 peak for women's employment in all manufacturing, but women wage earners engaged in manufacturing still exceed 4 million.

With the increased participation of women in manufacturing, particularly heavier manufacturing, it is readily seen that the occupational pattern of women in industry has changed vastly since prewar days. Because the safety pattern is so closely related to the occupational pattern, I have brought out in some detail

these various facts about women's wartime work, in other words, I have sought to set the stage for a fuller discussion of safety as it affects women on the job, for it is evident that the new circumstances arising out of the war have given an added importance and urgency to the matter of safety education and training.

The Safety Pattern As It Affects Women in Industry

On the whole, the safety training of women should not differ very much from that of men, but there are some points at which the problems of women are special ones and need to be so considered. For one thing, the difference in background and experience between men and women may require some differences in approach to their training. This is especially true in the present period, for many women who have taken jobs during the emergency heretofore had little if any industrial experience.

As the Women's Bureau study indicates, more than half of our 6½ million new women workers taking jobs in the period surveyed entered the labor market from their home housework. To most of these women, the factory environment was a strange one. They were totally unfamiliar with the machines, tools, and terminology of their new environment. After self-paced work of the home, it was not easy to become accustomed to the regulated, fixed time routine of the factory, nor to the size, noise, and movement within most plants. Additionally, on top of a full day's work, most housewives must run a home, prepare meals, care for the children, do the shopping, and perform innumerable other household tasks.

These home duties have a direct bearing on the housewife's performance on the job, for they affect her efficiency, her health, and her staying ability. Consequently, they assume particular significance in the placement of the worker. Such things as the suitability of night work, the amount of physical exertion, proper lunch, and rest periods, are important for all workers but for the women with outside responsibilities, are especially significant.

The introduction of very young girls into industrial life constitutes another problem of sizeable proportions. The Women's Bureau survey referred to earlier reveals that about a third of the new workers taking jobs between our entrance into war and early March of last year previously were in school. The age limitations that usually prevail in peacetime have been relaxed now, and girls under 21 are working in many occupations, at all hours, and under all conditions. Most of these girls have little or no maturity of judgment that might help them adjust to the new environment. Like the housewife, they must be taught how to handle strange tools and machinery, and to realize their obligations in relation to other workers.

Though considerably fewer in numbers than the young girl workers, older women who have taken jobs during the war present a safety problem of their own. When women first came into war jobs, age limits were stringently set, with 35 or 40 years often the top age for a woman war worker. Gradually this practice was changed, partly because there were not enough women available in what was considered the most suitable age group, and partly because it was discovered that a woman past 40 is able to hold her own on many jobs. This not only opens up infinitely more opportunities to the older women, but it places a responsibility on management to consider their needs in its health and safety standards.

It is well to remember that this particular need will not end with the emergency, for statistics indicate that after the war the percentage of middle-aged women workers is likely to increase. Safety problems related especially to the employment of women in the upper-age brackets include that of physical limitations. Now middle-aged women are performing successfully in the shipyards, aircraft plants, ammunition factories, steel mills and other more or less masculine domains. But, we know that the ease and vigor with which they respond to certain physical demands may not always be as great as those of their younger colleagues. Accident figures indicate that the frequency of disabling injuries is no higher for this group than for others but that the average length of time lost for each injury is somewhat greater.

It seems to me there are two basic considerations that should determine the suitability of jobs for women in terms of their sex. One is the physical demands of the job in relation to the physical strength of the worker. The other is the possibility that job requirements might affect the child-bearing function. As far as the former is concerned, we have a considerable body of general information concerning the relative strength of men and women. We know that on the whole women are not able to do the heavy physical operations that some jobs in various industries call for. It is important, then, to evaluate the job in terms of the physical effort required to do it.

I shall not here discuss the question of weight-lifting, what limits should be placed on the weight women should be required to lift or carry, and under what conditions. You are familiar with such matters as the relatively shorter reach of women, which will affect their ability to use some apparatus such as arm or foot levers unless these are adjusted to women's size and strength. The use of large pneumatic drills, heavy riveting or welding equipment, chipping guns, and similar apparatus is also to be considered in terms of women's physical capacities.

At the same time, the physical ability to do a job should be considered in terms of the individual to be assigned to it, not alone in terms of the sex of the worker. Women and men both vary so widely in their strength and endurance that no absolutely hard and fast lines can be drawn between what a man can do and what a woman can do. In each case, it would be highly desirable to fit the individual to the job. Some women are stronger than others, and even stronger than some men. Lifting and carrying can be just as much a source of injury to men as it can be to women, if not properly assigned and done.

The best protection that industry can give for the child-bearing function of its women workers is an effective maternity policy that is fully carried out. Such a policy recognizes their special needs and limitations during periods of pregnancy, and at the same time protects the worker's economic security and the plant's womanpower. Proper medical guidance in the assignment of work and in determining the length of time any individual woman may work will save the employer the loss of many days of experienced help, keep the woman on the job when she needs to be, and protect the health of both mother and the child.

Underlying a program for health and safety education there must be, of course, a careful process of selection and placement. Women differ among themselves in their capacities and limitations as much as they differ from men. The placement of an individual woman on a specific job calls for an understanding of how well her abilities, mental and physical, match the requirements of that job.

Without such a process, the safety and health program must struggle against the obstacles of mutually unadjusted worker and job. If a woman is physically incapable of doing a certain job, she cannot be taught to do it safely. If she is capable of skilled and responsible work, it will be difficult for her to adjust to a highly monotonous and routine job. Just because of the present urgency of production, a plan of careful selection and placement is essential; in fact, the maximum use and greatest stability of those who are available depend on such a program.

A successful program of health and safety education for women must begin at the point of induction. Too often it is assumed that all that is necessary in employing women is to sign them up and put them to work. This is far from correct. All inexperienced workers, men or women, need to be introduced to the job. Women, because of the circumstances mentioned earlier, especially need such introduction. The maintenance of health and safety standards is just as dependent on good induction as is efficient production, and should be considered a vital part of the induction program.

Every good job instructor knows that teaching safety is an integral part of teaching the job; that showing the safe way to handle tools and machines is as much his responsibility as showing which equipment to use. But preparing the worker for the idea of safety should be done in the initial contact of the worker with the plant, for safety is involved in much more than the job itself. It is involved in the way the worker walks through the plant, in her alertness to her environment, in how she thinks and feels about her job, in her attitudes toward fellow-workers. Safety-mindedness is something new to her, and it is extremely hazardous and wasteful to let her achieve it through experience alone. The induction period should be used to give it to her.

Just talking "safety" means nothing to a new worker unless she is told what the specific ways of working safely are. For example, it is not enough to tell a new woman worker to lift correctly. Time should be taken to demonstrate, and to allow her to practice the correct way.

Lifting is only one example. Clothing is another, though I think that much of the discussion we hear about this matter goes beyond what is necessary. This does not mean that clothing regulations should be issued arbitrarily and never discussed. What safe clothing is and why it is needed should be explained. Then it should be assumed to be as essential a part of the job as the right tool. A right attitude toward safety clothing is something that can be established in the induction program, and, if well established there, can be eliminated from the foreman's or safety director's day-to-day worries.

Such questions arise for the woman who is new to industrial work but not for the experienced worker, who is as capable of taking on the job as a man of equal experience. According to the Women's Bureau survey of woman employment between December 1941 and March 1944, about 85 percent of the 9,830,000 women who were employed both before the Pearl Harbor attack and at the conclusion of the study, had remained in the same occupation groups in which they worked formerly. Thus, when our great war machine got going, large numbers of women already were accustomed to the routine of factory work and the operation of various machines. Many typically woman-employing industries—textiles, clothing, shoe and food processing industries—have converted to war production. Their safety problems remain basically the same.

Though a plant is responsible for establishing good practices within its gates, and maintaining safe and healthy conditions on the job, it is not possible to isolate completely the on-the-job factors from those off the job. As I have pointed out, this is especially true in the employment of women with outside responsibilities that are a potential threat to their staying power on the job. This is where cooperation between various departments in the plant can help--the nurse, the doctor, and the woman counselor working with the training officer and the safety director--first, to point out to women where the possible danger spots are; and second, to offer specific suggestions for overcoming them.

There is not always a clear separation between health and safety factors. It is both a health and a safety hazard, for example, for a pregnant woman to work on a job for which her condition makes her unsuited. It is both a health and a safety hazard for the woman harassed by double duty on the job and at home to neglect her rest, proper eating, and relaxation, and to bring her unsettled problems and unsettled state of mind to work with her. The importance of these adjustments should be explained to the woman when she first comes to the plant, otherwise she may not have a clear idea of how they affect her performance on the job.

Although a safety program must take account of distinctions between men and women, it is highly desirable that we not over emphasize them, for the bulk of available safety data indicate that the employment of women presents no great difficulties from the viewpoint of safety.

It may be interesting therefore to ascertain what kinds of accidents are happening to women workers in wartime. One answer to this question appears in records of States that analyze accident causes by sex. A study of workmen's compensation figures for a few States in which records have been kept by sex reveals that four agencies are the predominant causes of injuries to women. These agencies are falls, power machinery, handling objects, and hand tools.

Falls have always been a major cause of injury to women, perhaps more so than to men. Differences in the incidents of falls between men and women or between older and younger women may be as much the effect of differences in employments as in age or sex. If older women are subject to falls in greater degree than others, that may be, for example, because they are predominantly in service industries, where conditions make falls more prevalent.

Falls, of course, occur everywhere, not just on the job. They are in many instances related not to the occupation itself, but rather to the working environment. Unguarded stairs and slippery floors can exist anywhere, and women can wear high heels and walk carelessly anywhere.

The occurrence of power machine injuries, according to a new Women's Bureau study soon to be published, points up a number of facts relative to the wartime employment of women. The increase of such injuries since the beginning of the war has contributed in a major way to the increase in the proportion of accidents to women in manufacturing as compared with non-manufacturing industries, and reflects the greater employment of women in manufacturing war jobs. By way of illustration, the proportion of injuries to women reported as compensable in

Illinois in manufacturing industries rose from 42 percent in 1940 to 65 percent in 1943, and the number of injuries from power machinery increased in the same period from slightly over 500 to nearly 1,700. Our new study further reveals that power-driven machinery is one of the three major agencies to which about two-thirds of the injuries to women in Illinois reported as compensable in 1943 may be ascribed.

Despite the increase of power machine accidents during wartime, such injuries are by no means confined to the new war industries or attributed solely to the increased use of such machines as lathes, grinders, or milling machines. Power sewing machines, which women long have operated, still cause a sizeable number of all injuries resulting from power machinery. The same is true of punch presses, with which women also have had extensive experience. It may be significant, however, that more women than previously are operating the latter.

Though injuries arising from the handling of objects are conspicuous among women, they are less so than for men. This difference is to be expected, of course, because of the exposure of men to the handling of heavier materials.

Injuries caused by hand tools are found in large numbers both in manufacturing and non-manufacturing industries. The tools are principally scissors and shears, much used in textile and clothing; knives, prominent in food products, restaurants and retail trade; and pliers, pincers, and electric welding tools, used in various metal manufacturing occupations.

What can we infer about these injuries to women? First, the increase in some types of injuries is to be accounted for largely by the increased number of women in manufacturing jobs. This does not mean that the injuries are more numerous because the workers are women, but rather because women are now exposed to hazards in greater number. Secondly, we see the important part played by the same injuries that women suffered before the war: falls, injuries from sewing machines, punch presses, scissors, shears, knives, and the like. Third, some injuries do arise out of the employment of women in occupations in which they have not customarily been employed. These new hazards to women certainly must not be ignored, but they should be attributed to the nature or condition of the work and additionally to the inexperience or improper training of the worker rather than to her sex. They should be handled as all safety hazards must be: in terms of proper guarding of machinery, establishment of safe working conditions, and education of the workers.

Aside from actual accidents, questions frequently are raised as to the effect on women's health of vibrations on pneumatic tool jobs, exposure to extremes of temperature, cumulative fatigue coming as a result of prolonged physical effort, and other factors. We have no conclusive evidence to show whether or not women's health suffers as a result of their doing such jobs. In order to find answers, two things are needed: medical research to determine mental and physical responses to such exposure and full medical records of the work history of women. Such information would be invaluable in a good program of placement for women in industry.

What we are learning about safety for women from the war period may be partially summarized in a few sentences:

1. Many of their injuries occur in jobs they are accustomed to, and are similar to injuries experienced in the past.

2. The increase in injuries is in large measure due to their employment in greater numbers, and not to their employment on new jobs.

3. Criteria for the suitability of jobs for women can be set up in terms of a few basic factors.

4. For the most part, women need the same kind of protection as men: proper placement, adequate machine guarding, safe working conditions, and good safety training.

Up to this point, I have discussed the responsibility of management in developing among its women workers safe habits of work and a strong sense of safety-mindedness. Management cannot, however, and should not, bear the whole burden. Because the women worker's safety, security, and health are involved, she has both a right and an obligation to share the responsibility with her employer. For this reason, I conceive of a really effective safety program as "helping the worker to protect her health and safety" rather than as merely "protecting the health and safety of the worker." However good a program may be, it will not produce the best results unless it becomes the worker's own program.

One method by which women can participate in a safety program is through membership on labor-management committees. When women constitute a prominent part of the labor force in any plant, they should have an opportunity to develop their ideas, and to contribute their part of the solution to the safety problems faced, especially those peculiar to themselves.

Women also can and should take part in safety programs through their unions. The development of such programs is increasing, and in the unions, as in the plants, emphasis is increasingly placed on preventing accidents and illness rather than on rectifying or compensating for them after they occur.

In many instances, health education has not received the emphasis that has been placed upon safety training. Since the subjects of health and safety are so closely related, it seems to me it would be highly desirable to develop active health committees along with safety committees, and to allow for women's representation on such bodies. Women should, for example, be able to help plant management plan and carry out a sound maternity policy. With the increased employment of young married women, such a policy becomes necessary in order to preserve the maximum stability of the workers and to minimize the risks to their health and security. For the first time in the country's history, more married than single women are employed, though this reflects to a considerable extent the increase of more than 2 millino since 1940 in the total number of married women in the population.

From these facts, we see that there are certain points at which the employment of women entails special consideration in their education for health and safety. These points are not numerous, nor do they imply serious limitations to the employment of women. With their capacities recognized and fully used, women have proved themselves to be strong, proficient, and dependable members of the labor force in both peace and war.

Summary

Today, women are a third of the Nation's workers. With V-E day so recently achieved, our thoughts naturally turn to their place in tomorrow's world.

Some women, of course, will be glad to give up their jobs when conditions of war in the Pacific permit. The older women past retirement age may withdraw once the emergency is over. Many young girls who have taken jobs should and will wish to resume their education. However, the bulk of America's women workers must continue to earn a living and in a great many instances help to support others. It is for their sakes—and for the wellbeing of the communities of which they are essential members—that we must chart our safety course for the future.

Some of the millions of women workers will find opportunity for their special skills in the coming industries of tomorrow. Large numbers, of course, will return to their traditional employment in the textile, electrical, shoe, food, jewelry, and service industries where they long have been employed. But, wherever the employment is, women workers will continue to need the benefits and protection of sound safety practices if they are to retain in tomorrow's world at peace the gains they have made in war.

(WB 45-191)

Miss Robinson Rec'd 7/12/45

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LETTER OF TRANSMITTAL

UNITED STATES DEPARTMENT OF LABOR,
WOMEN'S BUREAU,
Washington, June 16, 1945.

MADAM: I have the honor to transmit a small bulletin citing various types of adjustments made to fit factory operations for performance by women.

Such concrete instances, frequently requested from the Women's Bureau, have been found during field investigations of the work women have been doing in the production of war materiel in many plants in all sections of the United States. These reports from visits to plants have been brought together, added to from other sources, and interpreted, by Elisabeth D. Benham of this Bureau's Research Division.

Respectfully submitted.

FRIEDA S. MILLER, *Director.*

Hon. FRANCES PERKINS,
Secretary of Labor.

CHANGES IN FACTORY OPERATIONS FOR WOMEN WORKERS

Changes and developments in industrial processes normally are taking place at all times. Not only has this movement continued during the war period, but it has increased in rapidity. The need for goods and commodities to be used in areas of combat became more pressing, while at the same time the usual labor force was being diminished by the induction of its members into the armed forces. This made it necessary for industry to take all measures possible to increase its efficiency of output and to adjust operations for performance by new and often untried workers, many of them women.

Thus the reengineering of jobs to enable women to perform them is not a new phenomenon. It is the continuation of a movement that has been in progress from before the beginning of the industrial revolution. It is merely the application of common sense to a situation. It is rightly judged to be the search for methods of enabling the worker to be more effective, and of increasing his or her capacity to add to the productive results in industry. Furthermore, the attention paid during the war to improvement of process, often with the objective of enabling women to do the work, has bettered conditions on the job to the advantage of the man as well as the woman worker.

It remains somewhat of a mystery how the huge blocks that form the Pyramids of Egypt were raised into place, but presumably it was done largely by slave labor unassisted by any but the most primitive devices. Today, such structures could be built quickly by huge cranes directed by a few engineers. The day of automobiles custom-built by skilled mechanics passed quickly, and through subdivision of processes coupled with the use of conveyors, cars were made available to practically half of the families of wage earners and clerical workers, as well as to many more of the well-to-do families throughout the country. Men's time and strength was not wasted by toting parts from point to point. Subdivision of jobs made for greater efficiency and economy, bringing the automobile within the reach of families of modest means. Modern heavy industries deal so often with such large parts and with such masses of material that men are no more capable than women of moving them without mechanical help.

Shortage of manpower during the early days of defense production led to much reengineering of productive processes to enable inexperienced men to become effective workers with a minimum of training. As war began it became apparent that inexperienced women also must be drawn into the labor force, and reengineering was intensified. At this point, some employers took the position that th[illegible] changes were concessions made in order to employ an inher[illegible] less desirable class of worker—namely, women. Other[illegible] more far-sighted, recog[illegible] and stated th[illegible] changes were desirable and should have been [illegible] go. They saw that lifting and moving devices and other changes saved both labor and money, and that almost any process could be more quickly and easily done if there was continuous study of possible improvements.

ADJUSTMENT TO LESSER STRENGTH OF WOMEN

It is generally recognized that the strength and height of the average woman is less than that of the average man. At the same time it is well to remember that the "average man" is an abstract idea drawn from many men who may vary in height from 5 to more than 6 feet, and who differ midely in strength and muscular development. On the average, women are some 5 inches shorter than men, and their strength is a little more than half that of men. In strength of grip the average for women is 53 percent of that for men, in strength of pull 51 percent.[1]

[1] Vernon, H. M. Health in Relation to Occupation. Oxford University Press, 1939. P. 313.

There are differences in the pulse rate between men and women, though individuals of either sex may vary considerably. Through adult life the normal heart rate for men averages 72 beats per minute, for women 78 to 80 per minute.[2] Whether or not these differences have any effect in relation to fatigue has not been determined. In this connection, it is found that tall individuals have a slower pulse rate than short persons of the same age, and that small ones are likely to have a more rapid pulse rate than larger.[2] There also is some evidence of blood differences between the sexes, but whether or not these affect susceptibility to fatigue likewise is not determined. This whole area is one subject to further investigation by the industrial hygienist interested in fitting work processes to the individuals who are to perform them. Another difference to be noted is that men have broader shoulders,

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[2] Howell, W. H. Textbook of Physiology. Johns Hopkins University Press, pp. 412, 586.

Though not strictly applicable to physical differences, it also is a practical consideration, in the matter of inducing fatigue on the job, that society customarily expects most women workers to double their work load—by the addition of household or home responsibilities. Moreover, these have been all the more exacting under the wartime conditions of shortages of foods and services, and at the same time have affected more women than formerly as increasing numbers responded to the repeated appeals for more workers on war goods and services.

Use of lifting and moving devices.

Employers in some plants that had not employed women at first sometimes expressed as an objection to taking them on—"Our work is too heavy for them." Nevertheless, great progress had been made before the war in supplementing the strength of men by the use of moving and lifting devices. In automobile assembly plants, floor conveyors carried the chassis from point to point in slow motion while work was done along the line. Overhead conveyors brought additional parts to this line at the precise point needed. A hoist lowered the heavy engine into place and finally the finished car moved out under its own power. However, there was still much reliance on muscular effort to place heavy pieces on the work table, to move them on or off the conveyors, or to put them into the machine and remove them when the processing was finished.

A very simple adjustment that may be made under some circumstances is to relieve women of the heavy lifting by providing men or boys to do this part of the job, on full time or in combination with other duties. This enables other workers to put full time on the more skilled parts of the job. Careful planning is required to keep operations in balance so that time is not lost. At a warehouse visited by the Women's Bureau, too many men were hired for lifting at certain stations. Since this was their only work they often had time to waste. They were paid a higher rate than the women workers whom they assisted. This and the fact that the women were kept very busy caused considerable dissatisfaction.

The works manager of an aircraft engine plant in discussing the introduction of women, noting the usual objection to their employment—that they are not physically suited to heavy jobs—said, "Why should there *be* heavy jobs?" This firm recognized the problem and was taking steps to eliminate all heavy work for men as well as woman. The cost of handling equipment should not be excessive, but should result in an over-all increase in efficiency.

In any case, the use of human brawn for the heavier lifting and carrying operations may not be the most effective employment of labor. Installation of devices such as rollers and casters for sliding, fork-lift trucks, pedestal lifts, and other methods now well known often prove far superior. The introduction of lifting and moving equipment in the examples that follow often accomplished much more than enabling women to replace men. Frequently these methods enabled work to be done more safely and efficiently, and saved extra labor and time.

An aircraft-engine plant was able to put women to work after designing special lifting devices. Inspection of 50-pound cylinder barrels for tool marks and scratches after the first machining operations required removing the part from the conveyor, tilting it for proper light reflection and rotating it for examination of the entire bore. A tilting carriage was devised consisting of a small wheeled platform carrying a hinged fork. It lifted the barrel from the conveyor, held it at a convenient angle for inspection, and returned it to the conveyor. After tin-plating, the cylinder bore was ground. Here the problem of lifting the heavy barrel into the machine and out again was met by the use of a small hoist carried on a jib crane. Following this operation, the cylinder bores were inspected for size before the parts went to the heat-treating department by means of an overhead conveyor. At this point also a simple mechanism enabled women to transfer the part from one conveyor to another. A milling process on the barrel took but a short time, so that loading and unloading had to be done frequently, presenting considerable difficulty until the use of an ice-tongs grab was adopted. The tongs were shaped at their lower end to fit inside the part.

The Quartermasters Department furnished its storage depots with good material-handling equipment and as a result employed women successfully. Women operated tractor-trailer trains and fork lifts with pallets. To aid in handling and packing supplies there were gravity wheel conveyors, power-driven belt conveyors, gravity roller conveyors, and other mechanical devices.

The fork-lift truck is a relatively small powered vehicle equipped in front with heavy protruding forks. The operator who drives the truck manipulates levers which raise and lower the forks and guides them into the pallets on which supplies are stacked, or under skids and crates especially constructed for fork-lift operation. The load is taken to the assigned storage space and deposited in any designated location by raising or lowering the load and pulling the forks out.

This truck, which has revolutionized warehousing procedures, is a modern time-and-labor-saving machine. One woman operating such a truck can, unaided, pick up, transport, and stack a load up to a ton or more in a fraction of the time and with a fraction of the effort that would be required by any other method.

In one of the depots visited by the Women's Bureau, a warehouse bay that contained 30,000 boxes weighing each from 100 pounds to 1 ton was pointed out as an exceptionally fine stacking operation done by one woman fork-lift operator.

The operators of the fork-lift trucks, trailer trucks and similar vehicles, had to be especially careful and skillful on crowded platforms and ramps and in the limited aisle space of the warehouse. These women operators must be able to stop and start quickly again, to drive forward and backward, around corners and stacks and on the edges of platforms. In several depots women were reported as very successful and they could have been employed to advantage in others.

At another Quartermaster Depot a simple and safe method was devised for transporting and handling cumbersome steel plate used as ramps between freight cars and loading platforms. Steel loops were inserted in pairs in holes burned into the plate. The forks of a hoist-lift truck were run through the loops and raised to allow floor clearance. In this way one girl operating the truck could easily transport the plate to any desired place with practically no danger and with a great saving in time. Previously, it took three or four men to move these heavy plates and often fingers were crushed and backs strained.

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In a can plant visited by the Women's Bureau, adjustments were made that enabled women to handle large quantities of tin plate. Piles of this material formerly were hauled almost entirely on small carts, each pile on a single cart, said to weigh about one and one-quarter tons. This was changed by using fork-lift trucks that women can operate. Under the old set-up considerable manual labor was required to get a pile of tin plate started into the stripping machine and the lifting required was too much for women. Under the new arrangement, piles of plate were deposited by a fork-lift truck on a roller-bearing conveyor which a woman can operate by means of a lever. With this conveyor the tin plate could be placed in position for feeding.

Using roller conveyors and pedestal lifts, women in a British munitions plant carried on all the operations following forging on a 180-pound shell. Hand-operated lifts were used to transfer forging to the rough-turning machine. A movable bench tray attached to the side of the conveyor and a similar tray swinging from the fuze-hold boring machine enabled the operator to slide the shell into the machine. A roller at the tip of the tray further lightened the effort of sliding the shell. The shell was lifted from the roller conveyor by means of a pedestal lift and swung across the aisle into the finish turner. A simple hand-operated lift enabled a girl to slide the shell over the scales and lower it into weighing position. A similar hand lift permitted the shell being raised easily from the bench, transferred to the copper band press and lowered into it. From the copper band press the shell was lifted by the same simple mechanism to the thread miller.

At a shipyard visited by the Women's Bureau, acetylene welding tanks weighed 450 pounds. After women burners were hired, gas was piped to all work locations to eliminate handling of the heavy tanks.

Sometimes the simplest means provide a solution of the lifting or moving problem. In one plant where girls worked on pieces that might weigh as much as 37 pounds, tables were built beside the machine. Instead of lifting the pieces from the floor the girls slid them from table to machine. The sliding of work on the bed of a drill was made easier in one plant by installing four buttons under the jigs, thus eliminating suction created by pushing one flat surface over another. In a radio plant, the change in the location of an inspector's cage greatly reduced the material handling of the other operators.

An airline company expecting about half its maintenance mechanics to be women, planned to mount heavy machinery on rollers and casters so it could be shifted easily about the shop. They also intended to counterbalance mobile tools.

Many reports on job changes illustrate the facts already noted—that lifting and moving devices are constantly being introduced with men as well as women workers to increase production and save time and labor.

Switches on an automatic conveyor, analogous to track switches on a railroad, permit a honing-machine operator to route engine cylinder barrels in and out of his machine without lifting them.

A large platform designed by a plant engineer substantially speeds the handling of large pieces of work on a riveting machine. A combination of ball-bearing casters and springs keeps the work level. The operator can lower it to the proper point and maneuver it easily. Formerly as many as three operators were required to handle large pieces.[3]

[3] This and some of the other instances used here also are cited in the study "Wartime Technological Developments" issued in May 1945 by the Bureau of Labor Statistics for the Senate Committee on Military Affairs, 79th Congress, First Session (Monograph No. 2, of the Subcommittee on War Mobilization).

An automobile plant has introduced a new method for handling the block and rough cut stone used for relining and repairing foundry cupolas. Low platforms on which the material is evenly piled and strapped are taken directly from boxcar to storage by fork elevating trucks. Previously the material was handled manually three times. Freight cars were tied up for longer periods, the material could not be stored so compactly and greater loss through breakage resulted.

In drilling rivet holes on aircraft parts, piles of sheets formerly were stacked and clamped by the operator while his machine was idle. A new clamping table which rolls on wheels made it possible for a helper to do the loading and unloading, and the operator and his machine were occupied continuously with drilling.

In heat treating, parts are loaded into a bucket on an overhead conveyor, dipped into the heat-treating bath, quenched, and then put on a separate conveyor for unloading. This automatic quenching takes only 4 seconds and is regarded as one of the fastest of such operations in use in the aircraft industry.

An interesting example, no doubt typical of many, may be cited of the use of conveyors, not only for heavy lifting but to provide a better work lay-out, saving space, time, and labor. A plant that made frames for women's handbags before the war converted to oil filters for military motor vehicles. Conveyors were used before the war chiefly for heavy handling. With the need for increased war production slide and belt conveyors were introduced in almost every working area. The management estimated that they added 100 percent to the plant's capacity with only 20 percent increase in manpower.

One instance was the use of a special conveyor in various stages of assembly. Women worked on small cores on the fourth floor. Instead of dropping them helter-skelter into trucks for delivery to the floor below and there presenting the next women assemblers with the problem of fishing the units out of a box, the fourth-floor operators slip each core into a gravity-fed arrangement of curved steel tracks which allows the cores to slide in a uniformly upright position to a belt conveyor on the floor below.

Use of lighter fixtures and tools.

Much unnecessary expenditure of strength can be avoided by the use of light tools and fixtures. When these were made almost universally of metal, the weight often was considerable. By making jigs of masonite or wood fiber, many jobs have been brought within women's capacity. In one instance it was reported that with wood fiber jigs women could perform operations in half the time required by men using metal jigs.

Plastic tools much lighter than metal have been found a great improvement on a number of counts. Seven times lighter than zinc alloy, they expedite handling and shipping to various company plants. The tools are molded, and since molds are saved duplicate tools can be made inexpensively. A foundry visited by the Women's Bureau, on employing women, reduced the size of implements used such as shovels and dumping carts.

In an aircraft plant, instead of using a heavy wood fixture and old-style templates, simple steel templates with quick-acting clamps are used to locate and hold stringers in place for drilling. A roller table makes it easy for the operator to slide the work into position at the piercing machine. The new method increases output 57 percent and reduces space, excessive drill breakage, and operator fatigue.

For efficient welding in a shipyard a new electrode-holder was devised, equipped with an insulated tip of asbestos-filled phenolic plastic capable of withstanding very heavy impact. The tip, which receives the hardest use, can easily be unscrewed and replaced. The insulating quality of the plastic is such that holders can be dropped on grounded surfaces without causing short circuits. Lightweight and streamlined, the tool is easily handled by women welders.

Use of other devices and methods.

Ingenuity of plant engineers or of the workers themselves has helped to make many jobs easier both for women and for men. Usually other advantages are secured such as increased production or greater safety.

In a certain plant the assembling of hydraulic jacks could be done only by strong men as it required the use of wrenches with 8-foot handles to tighten the jacks to 15,000 pounds pressure. There was some scrap and the work was hazardous. By using mechanical wrenches with a predetermined, non-varying wrench pressure, women were able to do the work. Production increased 250 percent, scrap was eliminated, the product was better, and the accident rate was reduced.

An aircraft plant developed a combined bucking bar and rivet hammer. It is suspended with a counterbalance and its operation takes no more physical exertion than shooting a pistol. It enables one woman to do what once took the effort of two men.

Centrifugal force exerted by fly-balls on the cover of a centrifugal casting machine in a metal plant clamps the cover on tightly while the die is rotating. The cover can be removed easily at other times. Great effort had been required to open and close hot dies and molds with the screw locking device formerly used.

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To save space in an airplane plant, large drill-assembly fixtures which formerly had been laid flat on the table or on sawhorses were mounted on wheels or swivels. Most of these fixtures have to be worked on from both sides. Formerly one man crawled beneath, the other knelt on top, both in an uncomfortable position. Both workers now stand comfortably and the tool swings so easily that women work at it readily without fatigue.

At a plant making tools, a hand lever that took all the strength of a man to move now can be operated with two fingers by a woman using a 2-foot extension lever. In relating this improvement, the comment was made: "Why wasn't the productivity of male workers increased years ago by the same lever extension?"

Engineers of a midwestern company converted an old standard arbor press into an air-operated machine that stakes screws in a 20-millimeter shell booster. The results of the air-powered machine were a definite saving of time and elimination of the fatigue resulting from the use of a manually operated press. The staking machine is operated by a young woman who was on a machine for making loose-leaf binders before her employment on war work.

Suspending an air-operated wrench from a counterbalanced support eliminated the necessity of lifting and handling it. A woman replacing a man in the use of the wrench was able to manage two such counterbalanced air-driven wrenches simultaneously instead of the one formerly operated by the male employee.

Engineers of a machine-tool company put a new lever on a special spinning lathe so that it required 70 percent less exertion than before. An operation formerly thought to be too heavy for women now could be done by them.

As women were introduced into an aircraft plant automatic, hydraulic, pneumatic, and electric tools and equipment were provided, thus reducing fatigue. For example, a hydraulically actuated bench vice with a pedal control is used in subassembly departments. The jaws are clamped together with terrific force, though with no more effort than is required to operate the hydraulic brake of an automobile. Another pedal opens the jaws in an instant.

A new model transmission for machine tools of all kinds, as easy to operate as an automobile gearshift, was developed to make it possible for women to run such machinery. These transmissions remove the overhead line shafting and eliminate the necessity of dangerous belt-shifting by hand.

In a machine-gun plant fixtures and bench vices were installed where women were employed. These were designed to hold parts for filing, making the work not only less strenuous, but easier on the hand.

Both men and women operated centerless grinders in an artillery-ammunition plant visited by the Women's Bureau. Projectiles were fed by hand one at a time and ejected one at a time by the pull of a hand lever. Women found this tired their arms very much. The machine was to be changed so that the feeding and ejecting would be done automatically.

The testing of 13-pound fuzes had been such heavy work as to require men until the jig was redesigned and lowered to the height of the work table. This enabled women to do the job. One woman tested four lots in 5 hours compared with two lots in 8 hours when men did the work with the old equipment.

Many devices planned to increase production also conserve strength. They have been introduced not primarily to make the work possible for women, but to reduce the effort required and hence increase the efficiency of any worker. This is a rational approach to the problem.

Pneumatic wrenches are saving thousands of man-hours because they can be operated easily compared with the slow, tedious older method. They both apply and remove bolts, nuts, studs, lag screws, and so on.

The operators of a large battery of gang drilling machines were provided with seats that roll freely on angle-iron structures. This enables the worker to move sidewise without effort when transferring work from spindle to spindle in performance of successive processes on the same piece.

Engineers have designed and built hundreds of wooden "lazy-arm" mountings to which hand drills are clamped. The use of these lessens fatigue and reduces to almost a negligible number the parts rejected for crooked holes.

An arm rest has been developed that can be accurately adjusted for position and height to accommodate any operator. It makes the worker feel completely at home and is a real aid in elimination of fatigue.

A British firm making a component which had to be gauged in 11 ways arranged a lay-out of gauges, each in the position in which it could be most effectively used. The drawing of the component showed by letters the dimensions to be measured, and the gages to be used were marked with corresponding letters. It was also possible to gauge two components at the same time, one in either hand. The ordinary method of picking up each gauge as used was much more fatiguing and also took more time.

By using a locator plate to position jigs which have but two holes or drill bushings, drill-press operators can speed production and reduce fatigue. After the first hole is drilled the jig is moved to the left until it makes contact with the edge of the locator plate. At this point the assembly is correctly positioned for the drilling of the second hole. The device is especially effective in mass production.

ADJUSTMENT TO DIFFERENCES IN STATURE OF MEN AND WOMEN

There is evidence that the average woman is somewhat shorter and lighter in weight than the average man, that her reach is somewhat shorter, and certain of her members such as her fingers, smaller than his. Data on these points are averages determined from many cases and, as formerly noted, the average is a theoretical figure made up of many individuals who may vary widely. Consequently, it is also of interest to note the range, for example from tallest to shortest, or from lightest to heaviest man or woman. One fixed work level will not fit all women any more than it will fit all men.

Measurements made by Dr. H. M. Vernon, outstanding British authority, included more than 10,000 employed men and over 3,000 employed women, and showed the height of the women to be on the average about 8 percent less than that of the men, their weight about 16 percent less.[4]

[4] Vernon, H. M. op. cit., p. 312.

The United States Department of Agriculture in 1941 measured 10,000 women as a guide to garment and pattern construction.[5] The average height of these women was just over 63 inches, though individuals ranged from 51 to 73 inches tall. Their average weight was 133½ pounds while the extreme range among individual women was from 77 to 239 pounds. The length of a worker's arm is important in determining whether she can perform easily operations that require reaching for materials or for the controls of a machine. The women measured had an average outside arm length of 23 inches, with an extreme range of from nearly 18 to 28 inches.

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Industrial studies of the United States Public Health Service made from about 1914 to 1942 include physical examinations of some 10,000 working men.[6] Average height was presented by race and nativity groups and ranged from practically 68 inches for native-born white workers to 65½ for Italians. Average weight was presented by race, nativity, and age groups and ranged from 142 pounds for English born workers 25 to 29 years of age, to 163 pounds for Negro workers 35 to 39 years old. Native white workers 30 to 34 years old averaged 151 pounds.

[6] American Journal of Public Health, May 1924, p. 383.

Measurements for all white recruits accepted by the United States Army from 1906 to 1915 show that not quite 2 percent weighed less than 150 pounds and 3 percent, 180 pounds and over.[7] Half these men weighed less than 142.6 pounds, half more. As to height, few were shorter than 63 inches or as tall as 72 inches, the average being 67½. No figures were given for arm length. The reports for inductees in World War I and World War II showed those at the later date averaging slightly over 68 inches in height, and being about two-thirds of an inch taller than those of the earlier war period.[8]

[7] Hoffman, Frederick L. Army Anthropometry and Medical Rejection Statistics. 1917, pp. 31, 40.

[8] Metropolitan Life Insurance Company. Statistical Bulletin, November 1944, p. 1.

Though the groups were not, as in the British studies, representative of about the same time and selected in the same manner, still the data seem to indicate (as the British do) that on the average women are shorter and weigh less than men; they also show that there is a considerable overlapping between the two sexes in the ranges of height and weight. This indicates the great importance of proper selection of the individual, whether man or woman, with a view to the strength, height, and arm length required for the particular job to be done. The differences in averages and ranges in the height and weight of the two sexes, as just described, may be summarized as follows:

	Average of—		Range of—	
	Height (inches)	Weight (pounds)	Height (inches)	Weight (pounds)
WOMEN				
U. S. Department of Agriculture: White	63	133.5	51 to 73	77 to 239
British Industrial Fatigue Research Board	61.9	109.5	----------	----------
MEN				
U. S. Public Health Service: Native white	67.9	[1] 151	----------	----------
U. S. Army measurements: 1906-1915 (white)	67.5	[2] 142.6	−63 to 72+	−120 to 180+
World War I	67.5	----	----------	----------
World War II	68.2	----	----------	----------
British Industrial Fatigue Research Board	66.5	134.8	----------	----------

[1] 30-34 years of age.
[2] Median.

Simple equipment such as work benches and tables often can be adjusted easily to the height of the worker, whether man or woman—cut down or built up as the case may require. Much energy may be saved if seats are supplied. The height of the seat should be adjusted to the work in hand, with a firm, comfortable footrest where the seat is high. When equipment is used that cannot readily be altered in this respect, such as heavy machinery, fixed or movable platforms can be supplied. On these the workers can stand or their seats be placed.

The Women's Bureau in its studies found all these adjustments being made. Seats were raised, workbenches lowered, platforms supplied to supplement the women's lesser height and shorter arm reach. An ingenious fixture for riveters in a bomber plant enables the work level to be adjusted quickly to the height of the worker. A vertical rotating positioner like a pinwheel saves space and makes work accessible even to shortest women.

ADJUSTMENTS IN OTHER PHYSICAL CONDITIONS

Attention to suitable atmospheric conditions in the workplace proves to be economy, since it conserves the health of workers and aids in maintaining their efficiency. As a British report of 1940 states: "Experience gained during the last war, and by investigations made since, has shown the extent to which the efficiency and well-being of the industrial worker can be adversely influenced by unsuitable atmospheric conditions." [9]

[9] Great Britain. Industrial Health Research Board. Medical Research Council. Industrial Health in War. London, 1940, p. 13. (Emergency Report No. 1.)

Either excessive heat or excessive cold reduces the efficiency of workers and if long continued may permanently undermine their health. Moreover, workers vary in their susceptibility to extremes of temperature, some being affected much more quickly and more severely than others, some being entirely unable to make a physical adjustment to temperatures that are suitable for others. Evidence is not conclusive as to whether intense heat or cold affects women more seriously than men, and differences may be more marked between individuals of either sex than between the sexes.

Considerably more attention has been paid to the effects of extremes of heat and cold in Great Britain than in this country, and more complete observations are reported there than here, both during World War I and more recently. Dr. H. M. Vernon reports obtaining over periods of from 6 to 12 months continuous temperature records in a fuse factory and two shell factories. In each of these it was found that "the frequency with which minor accidents (cuts) were incurred was relatively large at low temperatures and high temperatures, but relatively small at intermediate temperatures." At the highest temperatures the accident rate "rose rapidly in the men, but only slightly in the women. This difference of effect may have been due to the fact that the men were for the most part employed on much heavier work than the women. * * * The high accident rates observed at low temperatures were probably due to the workers getting their fingers numbed by frequent contact with the cold metal shells and fuses they were manufacturing, or with the stream of soapy water in which most of the lathe-produced articles were turned." [10]

[10] Vernon, H. M. Accidents and Their Prevention. New York, N. Y., The Macmillan Company. pp. 76-77.

A report of the British Industrial Health Research Board in 1940 states that: "* * * Especially where metal parts are handled, temperatures below the comfort zone undoubtedly decrease efficiency in operations requiring much dexterity." [11] Another report issued in 1943 states: "Much evidence showing the influence of excessive warmth on working efficiency has been accumulated. * * * When tasks require considerable nimbleness of movement, uncomfortably low temperatures also tend to reduce efficiency, for the hands become chilled and their dexterity diminishes. * * *" [12]

[11] See footnote 9, p. —.
[12] Great Britain. Industrial Health Research Board. Medical Research Council. Ventilation and Heating, Lighting and Seeing. London, 1943, pp. 8-9. (Pamphlet No. 1.)

The Annual Report of the Chief Inspector of Factories in Great Britain in 1942 speaks of a shop in Leeds in which a serious production bottleneck was broken by installation of adequate heating, commenting "The advantage of adequate means of heating from the production point of view is obvious to anyone who has worked in a cold shop." The same authority in its report for 1943 reported methods of securing relief from cold that was reducing workers' efficiency, stating: "In one factory it was diffi-

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In this country considerably more attention has been paid to excessive heat than to the dangers of too cold a workplace. In an aircraft-engine plant recently reported here, installation of an air-control system increased output and operating economies, and machining at constant temperature was found to reduce rejections caused by dimensional variations from standard, and the consequent loss of both time and material.

Before women were put on the mouth-annealing machine in an ammunition plant visited by the Women's Bureau, a barricade or shield was placed around part of the machine to protect these workers from the heat. At an aircraft plant it was found that women did not work well in intense heat. Such divisions as the super charger test cells had to be air-conditioned before women attained the expected production rate.

In an airplane-propeller plant beginners in the welding department who are becoming acquainted with tools are also becoming acclimated to working near heat. Practice tables are placed near heated jigs so that the learner feels some heat radiation but not as much as is experienced when on production work. In the shop the jigs are covered with asbestos to keep the heat from rising toward the welder, and an adjustment for air-cooling keeps jigs and blades at proper temperature. Heat-resistant and flameproof jackets of lightweight material are supplied the welders. A considerable number of women were employed for welding, and experience in this plant indicated that women between the ages of 19 and 30 are best able to withstand continuous exposure to the heat.[13]

[13] U. S. Apprentice Training Service. Technical Bulletin No. T-119. 1944, pp. 5, 6.

Several other miscellaneous instances of adjusting to workers' needs (other than those having to do with temperature extremes) may be mentioned here. Some plants adjusted to employment of women by extra guards and other safety precautions. It would seem, however, that every safeguard should be employed whether men or women are at work. Many plants have found that job rotation reduced fatigue through lessening the monotony for the workers, and hence increased their efficiency.

In warehouses visited by the Women's Bureau women who had to be on cement floors, which are hard on the feet, were standing on heavy cardboard or old pieces of wood. The safety engineer was experimenting with ways to keep regular floor boarding from getting so slippery with oil as to cause falls, before supplying it generally.

On an ordinary clearance grinder for drills, the operator formerly had to insert the drill and pull through and out by hand, which is hard on the fingers. Now, however, a magazine feed can be used, or foot-operated pusher handle can do this job, with the woman having only to guide the drill through and catch it as it comes out. The safety of the operation is thus enhanced and production increased.

The grinding operation in one plant reported was further improved by extending the base pans a foot on all sides of the machine and covering them with a wooden grill. The pans catch the splashing coolant while the grill provides a dry place on which to walk. Drill-straightening at this plant used to be dreaded by the women because of the hot pieces of metal that would sometimes fly out. To prevent this, the arbor press of the machine was encased in a metal guard with a safety-glass window through which the worker watched the operation.

At a warehouse visited by the Women's Bureau, women who filled the bins often had to climb. They stood on boxes, kegs, or the shelves of the bins, and hazards of falling were likely to arise. Small, firm stepladders should have been supplied.

Modification of a roll-forming machine developed in an aircraft plant eliminated a serious hazard, tripled production, reduced scrap, and simplified the operation so as to permit the use of semiskilled operators. Foot switches were substituted for old rope control to stop, start, and reverse the motor. Asolenoid brake was added to permit instantaneous stopping at any point.

ADJUSTMENTS FOR EMPLOYMENT OF INEXPERIENCED WORKERS

Though it is an opinion commonly expressed that women have little mechanical ability, it is far more accurate to say that many of them have little mechanical familiarity. This may be understood very well from the usual tendency to give even the very young boy opportunities for such familiarity that were not afforded the girl. Ordinarily it has been the boy rather than the girl who was given a chest of tools for Christmas. Until very recently, handicraft taught in the schools for the most part offered only sewing or cooking to girls, while boys had an opportunity to learn the use of a variety of tools and sometimes of machines.

The Census of 1940 reported nearly 5 million men but only about 1⅔ million women as craftsmen or operatives in manufacturing. Moreover, the wartime labor force has included at work in all occupations in manufacturing industries some 3 million women who formerly were not so employed, and four-fifths of whom came from outside the labor force. Most of these undoubtedly were not experienced in performing industrial operations.

Just after the war began the Bureau of Employment Security prepared an analysis of jobs in key defense industries. By February 1942 they had listed 623 occupations considered as essential to the production program. The available information indicated that women were employed in only 27 of them. This adds to the evidence that many more women than men were without any experience for the work they were calld on to do.

Subdivision of work.

One very common and long-used method of meeting labor needs when there are shortages of experienced workers is to subdivide the occupation formerly done by but one person into a number of single processes. All mass production is based on subdivision, simplification, the use of special-purpose instead of all-purpose machines, introduction of devices that save motions and manpower and that hasten production.

In the clothing industry, for example, in the early days the tailor or tailoress made the whole suit, the dressmaker made the whole dress. While this still is done with some lines of expensive garments, the usual procedure is to break up production into many small parts. A machine operator sews a seam on one particular part of garment after garment; another person does nothing but pull basting threads; another sews on buttons.

The slaughtering and meat-packing industry furnishes another interesting example of subdivision of work. When the farmer butchers he does all the work with the help of his sons or neighbors. This includes the smoking of hams and bacon. His wife trys out the lard and helps make sausage for market or home use, and may can some of the meat. The early commercial slaughtering and packing business probably followed much the same pattern. A study of the industry by the Bureau of Labor Statistics in 1917 showed a subdivision into some 300 separate occupations aside from the canning department which was found less generally. While small establishments would have fewer separate classifications, the very large establishments may have had even more. In cutting up fresh beef, for example, the removing of bones might be done by at least nine different workers, each performing a particular operation. The chief qualifications for most of these seemed to be deftness and speed acquired by experience.

An early example of subdivision of jobs is quoted in a recent book: "Around the beginning of the century Eli Terry, a young clockmaker, conceived the idea of making clocks by machinery in wholesale fashion. In 1807 he announced that he was going to make, by one continuous operation, five hundred identical clocks that could be sold at five dollars apiece, which was about one-fifth of the prevailing price of an ordinary timepiece. The five hundred were sold so rapidly that he began to expand his production,

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[14] Woodward, W. E. The Way Our People Lived—An Intimate American History. New York, Dutton, 1944.

In line with such changes, which long had been taking place in many industries, further subdivisions of work were made, often quite rapidly, as a practical way of increasing production and lessening training time in war plants. In the earlier days of intensified war production, these methods were used to enable men without the required experience to perform the necessary processes after only a brief training period. For example, in many of the machine-tool plants visited by the Women's Bureau it was found that the regular 3- to 4-year apprenticeship course for training all-round machinists had been practically discontinued in favor of an 18-months' learnership program, or a few months or even weeks of instruction in one specific machine to be operated or one detailed part of the job to be done. By 1941 the industry had thousands of new men operating the most difficult machines after only from 6 weeks' to 4 months' training.

Under former methods used in making a gun, one man with 5 or 6 years' training worked 30 hours to file the intricate parts; now with the job broken down into its component sections 30 men with 30 days' training do the job in one hour each.

A plant making large equipment handled assembly in peacetime with a comparatively few skilled workers. Now work is done successfully by operators trained for a special job. If a man cannot make the bolt he is given the job of putting the nut on it. Tools for each job are plain and simple and in most cases perform only one operation.

A belt conveyor was installed at an aircraft factory and hand operators located along it. As each operation is completed the piece is put on the belt and moves to the next station. Instead of one or two men completing one entire subassembly, the work has been broken up so that a man operates one machine or does one hand operation.

Later similar fine break-downs of work were made for inexperienced women, and necessary training time shortened. Many of those eventually drawn into war plants formerly had had no mechanical work experience of any kind, such as would make it easier for the worker to learn a new process. But more than that, they had not even had experience in any line of gainful employment that might give them familiarity with a working routine, not even such as waiting on table or selling in a store. Not only did measures have to be taken to aid these newcomers in adjusting to the factory environment, but simplification and subdivision of the mechanical processes often had to be carried further than formerly to enable them to produce war needs. Coupled with this in some cases were more detailed explanations during training, or the use of illustrations to show how the process should be performed, methods which help to make up for a woman's lack of mechanical experience. Moreover, other changes in method had to be made, and of various devices installed, to supplement the training being given to inexperienced women workers and to increase their effectiveness.

In a steel mill visited by Women's Bureau agents, for example, jobs in the electric shop were found to be broken down somewhat more for women than men, and with the advent of women into the laboratories processes were broken down so that while women could do some of the work they were not expected to be able to do the entire testing.

At an aircraft plant, constant-motion lines for fabrication and assembly of wing panels furnish operators with a steady flow of work and cut down on floor space. Six persons worked at each station and each had the same operation to perform on every panel. It was estimated that an inexperienced woman could, in a short time, master her work so as to do her few operations 25 percent faster than the experienced worker when he had hundreds of other operations to perform.

At an aircraft-engine plant visited by the Women's Bureau, equipment had been provided to make it possible to train inexperienced workers to do one operation successfully in a fairly short time. A good many machines shut off automatically when an operation is finished. Some machines had indicators for gauging and measuring the work while it was still in the machine.

Special one-purpose drawings are used extensively to emphasize an important feature or particular operation, by isolating it from the mass of dimensions and other details that appear on the usual drawing. The worker can see at a glance what is expected and possibilities of errors through misreading a drawing are almost eliminated.

Symbols of switches, pipes, valves, transformers, motors, and other devices common in engineering practice are now reproduced on rubber stamps for use of draftsmne. This practice, it is claimed, saves time and money, reduces errors and inaccuracies, results in cleaner drawings and allows routine work to be done by trainees.

The use of instructive illustrations in airplane assembly speeds production and helps to introduce the new worker to his part in the assembly line. Checks on the time saved show that in one case a crew without the sketch completed a unit in 5.4 hours; a crew with a sketch, in only 1.9 hours.

In Great Britain, a gyroscopic-control unit of high precision was to be made in an area where skilled workers were scarce. The unit was redesigned particularly to insure ease of assembly (for which women were to be hired), the entire operation to be performed in a series of very simple steps, each done by a single worker. A conveyor was designed to give an even flow of work.

In a tool room in another British factory there were a foreman, two skilled tool makers, 30 youths under 19, and 20 women and girls. The unskilled workers were taught to do one small toolroom operation so that they developed considerable skill, but in a very narrow field. The toolroom was supplied with drawings which detailed each component part in a very clear and simple manner. Machining and fitting had been broken down into a number of very simple operations.

Change of method or material.

Many types of changes in production methods may be introduced. Often machine processes are substituted for hand methods, or further developments make an existing machine more nearly automatic. Various rearrangements or new ways of laying out work may make it possible to complete performance more easily and often more quickly.

For example, in a plant making photographic materials a bottleneck developed in the bottle and cork cleaning department due to slowness of hand methods combined with lack of manpower. The hand type of brushes used by men were replaced by motor-driven brushes with spray heads operated by women. In addition to more thorough cleaning, the new method resulted in a 200-percent increase in the number of bottles and caps cleaned.

The bevel on a certain airplane part used to be hand filed by men in 25 minutes. The finished job presented an uneven appearance. A grinding fixture was suggested to do the work and a beveling machine developed. The operation is now done by a woman in less than 3 minutes. The result is a cut of consistent depth and even appearance.

Metal stitching, a relatively new and extremely fast method of joining non-brittle materials below specified thicknesses, now sometimes is being used to replace spot welding. Stitching has reduced the time of the operation at least 65 percent and in many cases lighter, neater jobs have resulted. It takes 6 months to train a good spot welder, but only a few days for a good stitcher. Inspection time also is reduced, since no experience is required for detecting a defective stitch.

A sealing machine speeded the packaging of gasket sets in flat cartons at a military plant. The sealing operation is ac-

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A sealing machine speeded the packaging of gasket sets in flat cartons at a military plant. The sealing operation is accomplished by inserting the package into the machine with the open edges at right angles to the flat faces of the acetate tape and turning a crank. Formerly, workers creased the tape by hand around the edges of the package.

Induction heating has been used successfully to enable less trained operatives to do certain types of work. The time required for soldering covers on condenser cans was cut from 16 minutes to 2½ seconds by this method. A ring of solder is placed over the section to be joined. By pressing a starter button heat is immediately generated in the joint section and automatically turned off when the work is fully soldered. Electronic induction-heating permits all the teeth of an oil-well bit to be carbided simultaneously in a fe wseconds. The procedure is semiautomatic, while formerly teeth were carbided one at a time with a torch.

The wheels which operate the hundreds of valves on destroyers are being made of tough, corrosion-resistant plastic instead of aluminum in one shipyard. The use of the plastic saves 1,960 pounds of aluminum and 283 man-hours per ship, releases machine tools and foundry space and permits employment of women. The plastic is superior to aluminum in that it is a nonconductor of electricity, a poorer conductor of heat, and has greater abrasion resistance.

The cockpit ventilator of an airplane, molded from a high acetyl cellulose acetate, weighs 1.14 pounds compared with the 1.62 pounds of the complicated aluminum unit it replaces. The aluminum product took twice as long to make and required highly skilled labor and elaborate finishing and assembly. The plastic unit is turned out rapidly on machines by girls and requires no finishing except for removal of the sprue.

Use of special devices.

At an aircraft factory one of the first job-simplification steps was providing templates or patterns for all sheet-metal fabrication. This made blueprint reading unnecessary and opened up a whole new labor supply. Next came the supplanting of patterns by tools for each operation. Used in conjunction with machine tools for which they were intended, they made each fabrication operation comparatively simple.

Using a new mirror precision gauge, a girl can accurately adjust the sights of a Garand rifle in 2 minutes without firing it. The operation formerly took two men twice as long and used up as many as 13 rounds of ammunition.

In the assembly of a part for an airplane engine fire extinguisher, a man was required to hold the part in his left hand, insert a screw and washer with his right hand, and then drive it in with a screw driver. Aside from being slow and forming a bottleneck this method was hazardous. Now two of the parts to be assembled are mounted in a fixture and held there by a plate and eccentric clamp. The operator inserts the screw and washer, using both hands, and tightens the screw with a spring-suspended electric screw driver. Combining a woman's dexterity with this simplified method increased production 71 percent.

A British firm faced with a marking-out problem which at first seemed surmountable only by upgrading and training semi-skilled workers, found a solution by designing a jig for the job. This enables the work to be done by women in a fraction of the time formerly taken by highly skilled men. The jig eliminated all measuring by the operator.

Precision contouring can now be accomplished automatically and "steplessly" by use of a pilot finger attachment to a manufacturing type lathe or vertical boring mill. The contour control utilizes a system of pneumatic and hydraulic circuits to actuate the machine tool which then with a single set-up can reproduce exactly in the work all the mathematical curves of the template. Relatively unskilled operators may now perform this operation. The attachment can be applied to other types of machine tools.

An attachment for a pneumatic rivet gun permits an unskilled operator to perform the crimping operation easily and efficiently and makes possible more precise scaling of joints than the former tedious hand method.

A reaming jig for a portable pneumatic drill and reaming machine cuts time and labor. Reaming was previously done free hand with the machine, resulting in badly bruised and wrenched hands and arms when the machine jammed.

USE OF EMPLOYEE SUGGESTIONS FOR IMPROVING PROCESSES

Plant engineers often spend much time in reengineering operations, redesigning tools, machines, and fixtures, or designing new equipment in order to save the time of skilled workers, save material, reduce costs, and increase production. It is interesting to note, however, that many of the suggestions for improvements in methods have come from the workers themselves. Plants with well organized active labor-management committees are most likely to have usable suggestions offered. While men, who have on the average longer and more varied experience, have contributed by far the most, women have made many practical suggestions.

At one of the arsenals recently, women won 80 percent of the cash prizes for making the best suggestions. The highest award went to a woman for a mechanical idea which increases production, releases two workers for other jobs, and saves money and material.

As early as the spring of 1942 women in one aircraft factory repeatedly had made suggestions that increased their own efficiency. One designed a new rack on which light parts were conveyed from subassembly to the paint shop and supported during paint-spraying operations. Another developed a means of sewing tail wheel boats that saved valuable material and time. Yet another drew on her previous industrial experience in a bottling works to suggest the use of a glue-spreading machine to replace the former method of applying adhesive with a brush. A woman worker in the paint shop developed a method of masking which saved masking tape and could be used more quickly.

More than 22,000 man-hours a year will be saved by a woman's suggestion on inspection of bombs. The old method was to inspect them on tables. The installation of a conveyor reduces congestion in the department.

At a plant making airplanes women contributed the following suggestions: Change in a countersinking procedure eliminating a great deal of burring and dimpling; a loading device for milling tables; a thimble screw driver for many kinds of bench and assembly work.

At another aircraft plant, powdered soapstone is applied to the inside of vinolite tubing. This had been done by hand and consumed valuable manpower. A woman suggested that it be done with compressed air. At a third aircraft plant a woman figured out a rearrangement of a stacking fixture that saves about 830 yards a week of magneto condenser tinfoil. It was, of course, a woman who adapted a kitchen pastry syringe to spreading chromate paste on airplane parts. A woman in a St. Louis aircraft plant won two awards for production ideas. One was a device for holding airplane ribs while rough edges are being smoothed. The other enabled rivet holes to be drilled more efficiently.

Other suggestions by women workers on aircraft include:

Adapter for hydraulic testing, which cuts the time needed for the operation a third, eliminates the use of a wrench, saves 5½ hours a day and $100 a month;

A way of stretching wing fabric which eliminates about 15,000 man-hours of labor;

A pencil-like tool which neatly picks up small rivet washers, eliminates the tedious job of picking them by hand, and increases production of a small assembly by 120 pieces an hour; it saved 18 hours of production time a day;

An arrangement for telescoping a three-step job into a single operation, increasing output 45 percent;

Three brief steps as a substitute for the eleven steps that went into painting strips of color on a tube, and saved 8 hours a plane.

A hammer made of a spiral piece of metal about 1 inch long used for sewing the quarter-inch hem in a gas mask carrier resulted from a woman's idea. Five sewing machines were released on one operation and eight more on two others. Learning time was cut in half.

Two girls in a shipyard devised a small, compact, and efficient welding stinger out of parts of old worn-out ones. Stingers made on their model save $100 a day. Elsewhere, a 65-year-old woman made a suggestion which facilitated the shipment of lumber.

A time-saving audit plan devised by two other girls eliminates the typing of some 2,000 record sheets a week. These are now superseded by pre-printed time cards. Repair molds for electrode holders used in welding suggested by a woman save $82.50 a day.

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In an Illinois tool plant, an assembly job required removing wings and studs from cardboard boxes which had to be replaced from the storeroom when empty. When wing studs were assembled they had to be taken from the machine by hand. A girl whose only work before coming to the plant had been as housemaid worked out an improved method. A delivery chute for wings and studs was installed which supplied enough parts to last all day. The assembled wing studs were ejected from the machine by an injector pin into a drop delivery chute leading to a box beside the machine. These improvements increased production a third and saved 2,800 machine-hours a year.

A Chicago girl working on shell fuses on a huge screw machine, evolved two successive labor saving improvements. Fuses go through several operations on the machine and before the last of these they must be thoroughly cleaned. It had been the practice to do this individually in a degreasing solution, but this girl tried holding them under the flow of oil from the machine lubricating system. It worked and saved time. Later she developed a plan for a by-pass in the oil line. The separate line shot oil under pressure onto the fuses as they passed along on the machine's conveyor system. The arrangement ended the loss of 2½ hours per machine in each 8-hour shift.

The foregoing instances undoubtedly are typical of many other unrecorded cases in which women, as they became acquainted with new processes during the war period, have made suggestions designed to save production time and strain on the worker as well, and thereby in general to increase efficiency in the work.

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652782

U. S. Department of Labor
WOMEN'S BUREAU
Washington

SOME BASIC STATISTICS

Census - March 1940

Total number of women in labor force		13,010,000
Employed (including women on emergency work)	11,240,000	
Unemployed (seeking work)	1,770,000	
Percent women formed of labor force		24.5

December 1941 - Before Pearl Harbor

Total number of women in labor force		13,770,000
Number employed	12,850,000	
Unemployed (seeking work)	920,000	
Percent women formed of labor force		25.7

March 1944

Total number of women in labor force		16,880,000
Number employed	16,480,000	
Unemployed	400,000	
Percent women formed of labor force		32.9
Number of same women in labor force both in December 1941 and March 1944		10,230,000

From March 1940 to March 1944 - Large increase of women workers

Increase in number of women employed in civilian labor force	5,240,000
Decrease in number of unemployed women (Probably most of these found jobs because of the war)	1,370,000

All-Time Peak in Women's Employment - July 1944

Number in the civilian labor force.....		19,110,000
Employed	18,590,000	
(Includes seasonal workers such as additional women in agriculture)		
Unemployed.....	520,000	

Number of women in civilian labor force - November 1944.....		18,150,000
Employed.....	17,820,000	
Unemployed.....	330,000	

Estimated number of women in the labor force in the immediate postwar period.....	15,000,000

Types who will withdraw from the labor market

1. Young girls who will go back to school, it is hoped.
2. Some older women at retirement or past retirement age.
3. Some of the 2,710,000 housewives who joined the labor force, but not all, took jobs just for the duration.
4. War casualties increase women workers' wage earning responsibilities. (After the war many married as well as single women must earn their own living, and in many cases also support dependents)

Estimated number of women in the labor force by 1950 (according to John D. Durand of the Bureau of the Census)

Over 16,000,000 - or 3,000,000 more than in 1940 as a conservative estimate. This, he says, includes 2½ million growth that would have been expected under normal peace conditions, leaving only ½ million as the additional number due to war. His less conservative estimate is 1 million additional due to war.

Statistics on employed Women by marital status

	March 1940	March 1944	Increase
Number of single...	5,340,000	7,030,000	1,700,000
Number of married.. 1/	4,170,000	2/ 7,310,000	3,140,000
Number of widowed..	1,630,000	2,140,000	510,000

Statistics on women in the labor force, by age

	Under 20	20-24	25-34	35-44	45 and over
March 1940	1,380,000	2,660,000	3,560,000	2,470,000	2,780,000
March 1944	2,200,000	3,180,000	3,890,000	3,640,000	3,970,000
Increase	820,000	520,000	330,000	1,170,000	1,190,000

1/ Of these 3,550,000 had husbands present in same household.
2/ Of these 5,370,000 had husbands present in same household.

SP/RO

UNITED STATES DEPARTMENT OF LABOR
FRANCES PERKINS, Secretary
WOMEN'S BUREAU
FRIEDA S. MILLER, Director

✦

EMPLOYMENT OPPORTUNITIES IN CHARACTERISTIC INDUSTRIAL OCCUPATIONS OF WOMEN

By
ELISABETH D. BENHAM

BULLETIN OF THE WOMEN'S BUREAU, No. 201

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1944

For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.
Price 10 cents

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LETTER OF TRANSMITTAL

UNITED STATES DEPARTMENT OF LABOR,
WOMEN'S BUREAU,
Washington, October 11, 1944

MADAM: I have the honor to transmit a study directing attention to certain industrial occupations in which women have demonstrated marked success, and which may be expected to continue to afford many opportunities for women.

This report is one of a series of inquiries the Women's Bureau is making in fulfillment of its obligation to investigate indications as to types of jobs likely to present future employment opportunities for women. It also illustrates the way in which women's work in industry during the war has extended over a varied range in occupations having great similarity to those in which women long have been employed and in which they undoubtedly will continue.

The report has been prepared as one part of the Bureau's program to outline probable conditions for women workers in the reconversion and postwar periods. It is chiefly the work of Elisabeth D. Benham of this Bureau's Research Division, cooperating with Mary Elizabeth Pidgeon, Director of the Research Division.

Respectfully submitted.

FRIEDA S. MILLER, *Director.*

Hon. FRANCES PERKINS,
Secretary of Labor.

WHAT KINDS OF JOBS MAY NEED WOMEN?

Women workers long have shown marked ability to perform particular industrial processes that require care, patience, and skill.

In prewar years, and to a far greater extent during the war, women have been employed on these types of work, in which they could use their characteristic abilities. Outstanding among occupations for which women thus have demonstrated special aptitudes are:

Assembly of small articles—requiring deftness, accuracy, and patience.
Inspection of many types—requiring conscientious care and attention to details, and sometimes involving quite expert procedures.
Operation of various machines—requiring close following of instructions, and care in performing correct processes and in preventing spoilage of materials.
Tool-crib and stockroom work. Burring and filing. Coremaking. Wrapping and packing.

Not only war industries but peacetime manufacturing as well will need types of operations at least very closely allied to those so skillfully done by women, both before the war and in much larger numbers during the war.

The rapidity with which women can be employed on such jobs depends on prompt change-over to peacetime production. The extent to which such work can continue depends on sound methods to assure a high level of employment and the consequent distribution of buying power.

During the war large numbers of women have had valuable experience in detailed operations that are the same as or very similar to those that will be needed when production for civilians is resumed. These women can play an important part in meeting consumers' demands for such products as the following:

Electrical equipment for lighting, radios, medical care, and a wide variety of home uses.
Household utensils.
Hardware and other small metal parts.
Interchangeable small parts for automobiles and aircraft.
Scientific measuring instruments.
Certain plastic products.

Employment Opportunities in Characteristic Industrial Occupations of Women

PART I. DESCRIPTION OF THE OCCUPATIONS SELECTED FOR STUDY

The particular abilities of women workers have proved an unquestionable asset in certain industrial processes that long have employed women. In many cases allied types of skill may be utilized in several different industries. Consequently it is possible for women to transfer from one industrial job to another in an industry wholly different but requiring similar skills of the worker.

This has been of great advantage both to management and to workers during the war, when occupations in which women excel have engaged enormously increased numbers. It is likely that after the war these operations will continue to offer a large field of opportunity for women workers, owing to the interchangeability of such skills among several industries and the particular aptitudes of women in performing them. There is strong probability that they will employ fewer persons than at the war peak, but still will offer jobs to more women than in prewar days.

Such types of work include, for example, the assembling of small pieces into a whole or a part of the final product, which may involve the soldering, welding, or fitting together of parts with hand tools such as tweezers, pliers, or screw drivers; the inspection of parts or assemblies, which may range from a simple examination by sight or touch to the expert use of a precise measuring instrument; the operation of various types of machines, in some cases requiring the setting-up of the machine; a number of kinds of cleaning or polishing; and the wrapping and packing of the product, especially when this entails handling relatively small units.

Assembly, inspection, operation of certain machines, and the wrapping and packing of small articles long have been occupations employing many women. As far back as 1907 and 1908 when the study of woman and child wage earners was made by special direction of the Congress, women were assembling filaments for electric lamps, locks, jewelry, and metal articles among other things, and were operating drill presses, punch presses, and other machines in making nuts, bolts, screws, tin cans, hardware, and so forth (1).[1]

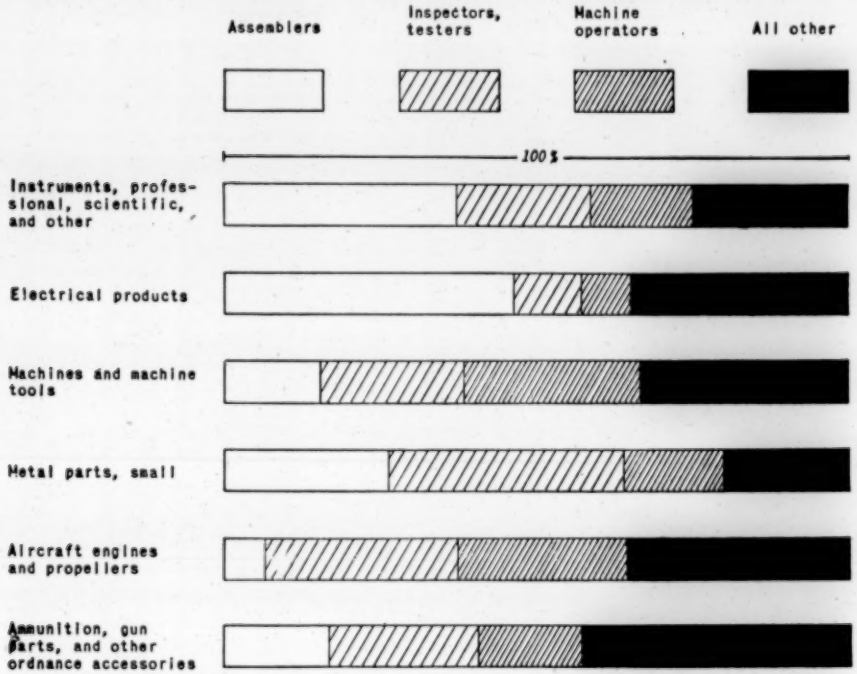
During the present war far greater numbers of women than before have gone into such occupations in war industries. A 1942 study of more than 125 war plants in a large industrial State found that three-fourths of the women with occupations reported in the electrical, in-

[1] References in parentheses throughout this report are to "Sources Referred to in Text," p. 49.

strument, aircraft engine and propeller, machine, metal parts, and ammunition plants combined were assembling, testing or inspecting, operating machines, or packing and wrapping. Typical is the report from an electrical plant recently visited, where the employment manager stated that women have been found to be more adapted than men to assembly work.

But it is not alone war industries whose products require assembling, inspecting, and machine operations to be done. After the war

EXTENT TO WHICH WOMEN EMPLOYED IN SIX SELECTED INDUSTRIES WERE DOING ASSEMBLING, INSPECTING, AND MACHINE OPERATING [1]



[1] From a sample of 70 plants in a large industrial State, 1942.

as before, women will do such work in many industries, probably in numbers considerably greater than in 1939 if not so great as at the war peak. For example, there would appear to be a relatively sure demand for such products as the following, the making of which requires the operations referred to: A variety of electrical appliances, such as buzzers, fuses, meters, plugs, switches, coffee-makers, and toasters; automobile parts; small metal products such as bolts, nuts, screws, pins, and needles; delicate parts of such machines as typewriters and other office equipment, sewing machines, and instruments for measuring and testing; and such long-time employments of women as the weaving of textiles, or the making of clothing, shoes, and paper products. Wrapping and packing occupations also are required in a number of the foregoing, and on an extensive scale in various food industries as well.

Two points should be made at the outset of this discussion, and they are points that cannot be repeated too frequently. In the first place, the employment of women will rise or fall with the soundness of the entire economy—with the rapidity with which conversion to peacetime production can be made, and the extent to which a high level of employment can be developed and maintained.

Secondly, the ever-changing processes of industry, new public demands and the decline of earlier demands incident to new discoveries, new methods of production, will continue to mean shifts in employment. Some highly specialized skills may become obsolete, others need to be developed; but at the same time there are certain skills that are admirably exercised by women and that are likely to be usable, or adaptable in some closely allied form, in a variety of industries to the extent that the country's economy enables those industries to exist.

The following pages will describe some of the work performed in various industries by women in such occupations as assembly, inspection, operation of machines, and a few others. Possibilities then will be discussed for postwar demands for the products of a few of the chief industries that undoubtedly will continue to employ many women in such occupations, as for example various branches of the electrical industry, transportation equipment, certain small metal parts, and plastic products.

ASSEMBLY

Among the operations that long have been usual for women in many industries are those of the type known in general as assembly or assembling jobs—that is, the putting together of parts. These vary widely in method used and in degree of skill. To screw together two parts of the plug for an electric toaster, for example, seated at a bench and using a small hand screw driver, is one of the simplest types of assembly. Somewhat more difficult is the assembly of an induction coil unit for an automobile. Wire is wound on a soft iron core, the electrical connections are soldered, and the unit is put into a metal or plastic housing.

When a number of parts are to be fitted together, it becomes necessary to have as a guide some sort of pattern or instructions. Usually this is in the form of a blueprint, and it is an important part of the worker's job to know how to read or interpret this accurately. Finally, there are very expert and complicated types of assembly sometimes involving hundreds of pieces, often requiring a thorough knowledge of the use of the mechanism being made. Examples are the work of the watchmaker, or the final assembly of scientific instruments or of machine tools.

The Dictionary of Occupational Titles compiled by the United States Employment Service defines assembler as "A general term used to designate a worker who assembles mechanical units or fabricated parts to form complete units or subassemblies, using hand tools or machines. Usually specifically designated according to the part he is assembling, the article he is assembling, or the stage of assembling he is performing."

Methods of Assembly.

Assembling of small parts may be done while seated at a work bench. It may or may not be organized on an assembly-line or belt-line system. Where larger parts are concerned, and more space consequently is needed, floor assembly is the method used, and this also may or may not be done on an assembly line.

The entire occupation for some individuals as a part of the assembling process may be the operation of a machine, such as a punch or drill press to make the holes through which screws are to go; others may perform some part of the preparation for making the parts fit or smoothing them, using a scraper or a hand file; or the parts may be fastened together with bolts or screws (using hand wrenches or screw drivers). More complicated methods of fastening parts together, requiring definite learning periods, may be by riveting, soldering, or welding (for which methods differ). The weight and size of the machines or of the hand tools used in these various processes depend on the weight and size of the parts being assembled.

Electrical assembly involves some techniques that are quite different from those involved in preparing and fitting together small metal pieces. However, in either type of assembly accuracy and fine work are involved and there is an overlapping in machine and electrical industries in the kinds of skills required by these occupations. Processes in the latter industry include cutting and insulating of wires, connecting them according to a prearranged pattern by the use of screws or solder, and so on. When a great number of wires are used the pattern may become quite intricate, as for a switchboard or an airplane panel board. Coil winding and armature winding are among the types of work involved in electrical assembly.

Persons who have learned the various techniques just mentioned should find their services of use in any one of a number of industries. Furthermore, if they have started with the easier processes they may be considered partly prepared for assembly jobs requiring other skills, which they can add to those initially acquired. For example, as has been indicated, in many of the more intricate jobs a knowledge of blueprint reading is essential. By adding such knowledge to her other skill, a woman who has successfully done some simple assembly can advance to a more difficult type of work.

Training Women in Assembly Techniques.

The extent to which women are learning some of the techniques involved in assembly may be judged by reports on cumulative enrollment from July 1, 1943, through April 30, 1944, in vocational classes offering supplementary training to employed women, thus adding to the skills they already were practicing. Altogether these accounted for about three-fifths of all women enrolled in such classes. They were as follows:

	Women enrolled	
	Number	*Percent of total*
Aircraft assembly	31,723	71
Aircraft riveting	39,991	70
Welding (all kinds, in all industries)	50,201	28
Electric welding, heavy	44,680	30
Blueprint reading	14,866	26

Importance of Assembly Jobs for Women.

That assembly jobs are far from new for women has been referred to. In World War I the Women's Bureau found women substituted for men as assemblers in some 30 industries studied at that time, as solderers in 9, as welders in 7 or 8, and as riveters in at least 4 (2). In discussing the work of women in such occupations, the Bureau stated:

> Women had been employed as assemblers of small-metal parts before 1914. The war not only extended their employment for the first time in this capacity to many factories making delicate machines or instruments, but it sent them into machine shops where parts of medium size were assembled. During 1918, women were substituted for men in assembling very delicate instruments, locks, typewriter parts, sewing-machine parts, adding-machine parts, rifles, airplane parts, hardware, cutlery, tools, gears, transmissions, and joints of automobiles; centrifugal governors, and radiators for engines; electric motors, switches, and switchboards; bombs and shells; in the assembling of many other parts; and in aiding in machine erection. * * * Two-thirds of the firms reporting on 1919 labor conditions had retained their women assemblers (3).

As recently as the summer of 1942, a Women's Bureau report of women's work in war industries in an important industrial State found that more than one-third of the women reported were assemblers, and that women constituted one-fourth of all assemblers in the plants visited. Only 6 percent of these women were replacing men; 92 percent of them had been doing that work before the war, and the few remaining women assemblers were doing work new to the plant. The importance of assembly as a job for women in the various industries surveyed in this State is shown in the following:

Industry	*Percent women assemblers were of all women*
Electrical products	47
Instruments, professional, scientific and other	37
Metal parts, small	26
Plastic products	17
Ammunition, gun parts, and other ordnance accessories	17
Machines and machine tools	15
Chemicals and drugs	13
Aircraft engines and propellers	7
Rubber products	2

Assembly of Aircraft.

A very great number of parts go into the finished airplane. For example, the midwing section alone of a certain type of plane has some 10,000 different kinds of parts, which are assembled into a unit measuring about 20 by 12 feet (4). Some parts are very small. One of the smallest electrical devices for aircraft use is a 10-ampere switchette weighing one-third of an ounce (5). Such a condition makes possible a very great subdivision of work and furnishes many jobs well within the strength of the average woman. The assembly of the plane sections is done in a variety of major subassembly departments, and the extent to which these functions are broken down into separate divisions varies from plant to plant.

Early in 1942 the Women's Bureau studied women's work in aircraft plants, and found women employed generally in detail and small subassembly. The amount of work done on detail assembly in the bench

departments varied with the organizational set-up of the plant, with a general tendency toward an increasing break-down of operations with more subassemblies and bench work. Women as bench workers were on operations preparatory to assembly. They were using small jigs to form subassemblies, fitting parts together with hand tools, wrenches, screw drivers, scrapers, and the use of arbor or power presses to force the parts close together, drilling holes with portable drills, cutting with hack saws, inserting screws, clips, and dimpling by hand and machine (6). Deft fingers and the ability to work with painstaking accuracy on small details are valued attributes. Certain of these operations are similar to work done before the war on the smaller parts for automobiles, though there is likely to be much more of the finer work in an airplane than in an auto.

In the detail-assembly department of one large plant, three-fourths of the workers were women. They were sorting, hand forming, filing, burring, and riveting as well as putting parts together with hand tools. In another plant women were 85 percent of all workers on detail assembly, 3 being foremen of riveting.

Riveting is the operation that builds up most of the subassemblies and final assemblies. Though not a large group at that time, women were on all the various types of riveting. Not only were they working on jig subassemblies of ribs, spars, and bulkheads, but they were attaching the metal skin to the control surfaces and wing panels.

At the time of the Women's Bureau survey of aircraft plants in the spring of 1941 it was estimated that in the fuselage department from 20 to 25 percent of the jobs could be done by women provided they were trained in riveting, which is the most common job throughout assembly. In wing assembly about 35 percent of the jobs could be done by women, in control-surface assembly nearly 70 percent, in cowling and tank assembly about 20 percent, in final assembly about 15 percent.

Spot welding, a process that is substituted for riveting on an increasing number of assemblies, requires little training and women were being employed with marked success. A few full-fledged women welders also were manipulating acetylene torches; these welded rods joining brackets to steel tubing on engine mounts, tanks, landing-gear parts, and other parts. A woman welder being paid a journeyman's rate of $1.32 an hour was reported as one of the most efficient in the group with which she worked; the others were men. Parts plants making manifolds, cowls, airscoops, and tanks were employing women gas welders.

The proportion of women on the major fuselage and wing and final assembly was very small and most plants had none at all. In two plants, however, women worked alongside the slowly moving assembly lines installing such parts as pulleys, levers, pedals, radio tables, switch panels, and controls. Women working in a team were installing parts of the hydraulic system for landing gears. In the wing-assembly section of one plant 68 percent of the workers were women. In the earlier stages of assembly women were operating dimplers and all types of rivet machines, drills of all sorts, band saws, small brakes, rolls and shears. In fuselage assembly (another plant) 52 percent were women. The foreman wanted 800 more "right away."

A vivid picture of women's progress in this industry is presented by the two trips made to a final-assembly plant. When first visited in

December 1941 it was stated that the nature of the work did not lend itself well to the employment of women. Fifteen months later about a third of the factory workers were women and their production had far exceeded expectations. Since parts were made elsewhere, much of the work was assembly.

Aircraft-engine plants visited by the Women's Bureau late in the summer of 1943 had women working with men, assembling engines, tearing them down after testing, and reassembling. In one plant women did 40 percent of the assembly work. Men did the jobs requiring heavy lifting, otherwise work was the same for both. Most plants avoided much lifting in engine assembly by having engines mounted so that they could be turned mechanically to different positions.

Assembly of Fine Instruments.

The making of aircraft, optical and fire-control, and surgical and dental instruments has been of great importance during the war. Aircraft instruments are for indicating, measuring, recording, or controlling the flight and navigation of a plane. Fire-control instruments are predominantly optical, such as panoramic sights, gunsights, periscopes, telescopes, and binoculars. The demand for surgical and dental instruments has increased to supply medical units of the Army, Navy, and Air Corps. At the same time, instruments for the automatic control of industrial processes have been developing, and probably will increase in importance after the war.

Many of these instruments are relatively small, light in weight, made up of many intricate parts and assemblies. The light work, the many small parts, and the painstaking requirements of certain operations make instrument manufacture a field well adapted to the employment of women. That their employment has greatly increased is shown by the proportion of all wage earners who were women in October 1943, as estimated by the Bureau of Labor Statistics, compared with the report of the Census of Manufactures for October 1939.

	Number of women per 100 wage earners	
	1939	*1943*
Professional and scientific instruments and fire-control equipment	15	43
Photographic apparatus	26	37
Optical instruments and ophthalmic goods	33	43

The final assembly of some instruments is akin to watch making. It calls for a high degree of skill and responsibility, a thorough knowledge and understanding of the use of the instrument, and a practical knowledge of the field in which it is being used. The fact that even two women were reported in a Women's Bureau survey as final assemblers and instrument makers shows that they might become a substantial part of the final assemblers if management were open-minded to the possibilities of employing them.

The Women's Bureau made a special survey of the instrument industries in the fall of 1941. At this time the policy as to the employment of women varied greatly among the plants, their proportion of all factory workers ranging from about 3 to nearly 50 percent. Later, in 1942, 9 instrument plants were visited in one industrial State, and more than a third (37 percent) of the women they employed were assemblers, all of whom were on work done by women before the war.

In the prewar period 44 percent of women's jobs in the plants reporting had been in assembling.

Most of the pressure-actuated aircraft instruments consist of a metal or plastic case, bezel or snap rings, front glass, dial, pointers, and a number of internal parts or subassemblies. In one of three large plants women did practically all the work on these subassemblies, while in the other two most of it was done by men. In a large plant that manufactures Navy and commercial barometers, automobile altimeters, and compasses similar to aircraft instruments, women have been employed extensively for many years and assembled aircraft altimeters during the war of 1914–18.

Another type of instrument is based on the gyroscopic principle. In one of the two plants inspected, women assemblers were classed as unskilled repetitive workers doing light bench work. In the other they did the major part of the assembly work.

Various news stories indicate an increased employment of women making aircraft instruments:

> Gyro-horizons and compasses, instruments necessary for safe, accurate navigation of aircraft, are so delicate that all work must be done in washed-air, pressure-controlled rooms. Women have proved especially adaptable to this work.
>
> An antiaircraft detector is assembled and largely machined by women.
>
> A watch company makes altimeters and fine telescopes, as well as navigation watches and clocks. Before war production began, the firm employed 40 percent women; in 1942, 60 percent; now (June 1943), 80 percent.
>
> A firm making automatic pilots for airplanes found it necessary to train girls with little or no previous mechanical experience to perform the exacting work required in the assembly of these devices.

In the manufacture of most dental and surgical equipment women did little but minor subassemblies. However, in one plant making clinical thermometers they were employed on all major processes. Sphygmomanometers, which measure blood pressure, also were largely the product of women's work. Here they did all the assembly.

Binoculars were the only fire-control instruments on which women were employed extensively at that time. They were mounting and setting optical parts such as lenses, Porro prisms, and reticles into the case, and staking and making minor adjustments of the position of the parts. Similar work was being done by women on telescopes, aircraft sights, and small gunsights. Later (January 1943) women were reported to be 80 percent of the employees in a department assembling Navy binoculars.

In another plant making Army range finders, fuze setters and fire-control mechanism, a visit in December 1943 found women doing electrical-parts-assembly bench work, and subassembly of units. Some of this is precision work and women were considered somewhat better than men. The instruments were assembled on a wheel truck that kept the work at bench level and enabled it to be turned in any position. The truck had been made in the plant to ease the work for both men and women. In final assembly women were helpers to the men. The men were first-class mechanics but the women were gradually learning enough about the job to go on with some of the assembly when the men were absent.

In a plant making sighting and fire-control instruments visited in July 1943, women were on subassembly using small hand tools. All were required to read blueprints.

Instrument assembly was found in shipyards where women worked with the instruments of navigation and control. They disassembled, cleaned, repaired, reassembled, and calibrated such instruments and meters as tachometers, thermostatic contact makers, hydrogen detectors for submarines, shaft revolution indicators, heat and pressure gages, and compasses. They also disassembled, cleaned, repaired, reassembled and alined the optical parts of telescopes, gunsights, binoculars, navigation instruments, and range finders.

Assembly of Machine Tools.

Assembly is an important part of the manufacture of machine tools. It demands the precise leveling of machines on the floors, the exact alinement of the various units with one another, and many fitting operations involving scraping, filing, tapping, and other hand and machine processes. As customarily organized, one man has done a considerable variety of work requiring both experience and strength, since many parts handled are heavy.

When the Women's Bureau visited 15 major machine-tool plants in the summer of 1942, only 8 were employing women on production and in these the proportion of women among all factory workers was only from 2 to 8 percent. Assembly accounted for nearly a fourth of all production workers; only 2 plants were employing women as assemblers, though with greater subdivision women could have done much more of the work. In 1 of the 2 plants where women were assembling, the work was so organized that women were not required to handle any part weighing more than 18 pounds; they were filing, burring, and polishing and using hand drills and arbor presses on some of the smaller parts. In the other plant, women not only were doing these simple, light operations but had been given the responsibility of putting together parts of some of the subassemblies, such as the cross-feed screw nuts, the taper attachment shoes, fitting the gears on small shafts, and making lever and hand assemblies. They had proved so satisfactory here that a large proportion of the women to be hired in the future were to be placed in the assembly department. At the time of the survey 70 percent of the women production workers were on assembly jobs. One of the companies visited was planning to employ women as final assemblers to do light fitting as well as polishing and cleaning on the smallest machines manufactured.

Studies of various machine industries made by the Bureau of Labor Statistics in 1942 also show relatively few women assemblers. Most women were performing the least-skilled bench operations. An exception was the mechanical power-transmission-equipment industry, where women were half of all bench assemblers and three-fourths of those described as "Class C," the unskilled group. The products, ball and roller bearings, gears, drives, shafts and so on, are relatively small (7). A ball bearing used in an aircraft instrument is described as 0.015 inch on its outer diameter and with balls so tiny that 3,000 would fit in a thimble. The entire bearing consists of six of these balls, a race, two rings, and an outer casing (8). It can easily be imagined how fine a process the assembly of such tiny parts must be.

In later Women's Bureau visits, toward the end of 1943, women in one plant were found doing bench assembly work which was not repetitive. They were using drawings, and considerable training and experience were requird. A few women were employed here in the

welding department. They were considered good at intricate work. Another plant visited at nearly the same time was still making some of its prewar products, full-fashioned knitting machines. Here about 75 women were employed on textile-machine needles doing fine speed work at benches that required great finger dexterity and excellent sight. Though none of the women had been there over a year, they were said to be much better than men and may be retained after the war. Many women were doing needle-filling, which involves slipping and fitting small needles into the groove of a rack on a small bar.

Assembly in Shipyards.

A great many small parts go into the building of a ship. There also are many fittings for the living and working quarters on board that are the same as or similar to articles made in other industries. For these reasons many shipyard operations are well within women's capacity.

In 1943 the Women's Bureau visited 35 shipyards that had women on production work and found women doing assembly work on a great variety of items. These inclued valves, couplings, waterpumps, Diesel engines, manifolds, metal furniture, locks, water tanks, ammunition boxes, lockers, rifle cabinets, switchboards, stanchion parts, ammunition-hoist parts, stiffeners, parts for watertight doors. In one yard women assemblers filed surfaces to true, fitted gears to shafts, and made subassemblies. Some were proficient enough to assemble an entire unit, such as the mechanism controlling the training of a gun.

Assembly of Ammunition and Firearms.

From an occupational standpoint, the chief value of women's experience in work on ammunition and rifles is in the techniques there acquired that may be applied to peacetime products. Only a minimum of these products should be required after the war, and with curtailment in their manufacture workers now making them will shift to other industries. Assembly of certain ammunition components is a perfect example of the work first considered essentially suited to women—the handling of very small units, requiring deftness, precision, and patience. This included the putting together of percussion elements, primers, boosters, booster cups, and fuzes in many varieties and sizes. It is probable that hundreds of small operations are needed to complete these various parts.

Work on mechanical time fuzes may be taken as an example of processes women were performing. One of the Government arsenals inspected by the Women's Bureau in 1941 reported 96 percent women in the mechanical-time-fuze department, where 3 years before only 2 percent were women. It is interesting to note that many women for such operations were recruited from needle-trade occupations, where their abilities had been developed in fine embroidery.

A mechanical time fuze is made up of more than 100 parts varying in size from a fraction of an inch to several inches. All the subassembly work is concerned with tiny parts and employs women almost exclusively. The assembly of the movement is divided into progressive steps similar to those of building up a watch or small clock. Much of the work is intricate; small tools are used—tweezers, files, screw drivers, hand drills, and others—and some of the assemblers wear a jeweler's loupe (eyeglass). Operations include the inserting of wheels

and movement parts; screwing, staking, and peening (drawing, bending, or flattening) subassemblies in place; setting escapements, firing pins, firing arms, and testing their action. Finally the movement is fitted into the fuze case.

In the making of small arms, assemblers were not a major occupational group; they composed only 2 to 5 percent of the workers in the plants. Women constituted 8 percent of the assemblers in plants inspected by the Women's Bureau in 1942, and the plant employing them on the widest array of assembly work had 17 percent. Women could do most of the small-arms subassembly and much of the final assembly, depending on the weight of the weapon.

In several Canadian gun and rifle factories visited by the Bureau in January 1942, half the assemblers on shoulder rifles were women, and it was expected that eventually women would comprise three-fourths. They were doing subassembly on machine guns and were beginning to work on final gun assembly with satisfactory results.

A United States plant making naval torpedoes was inspected in the summer of 1943. Here women were doing most of the assembly, which was fairly complicated. One person put together the entire front part or the entire after-body, including all the mechanism. Women were learning the complicated assembly of the gyro, which demands great precision. They were taught to work with considerable independence and responsibility.

Electrical Assembly.

As has been mentioned, the nature of electrical assembly involves characteristic processes some of which are quite different from those required in the fitting together of metal parts. Others, such as welding and riveting, are fairly similar in metal and electrical assembly. Coils and armatures must be wound; electrical connections must be prepared, wire insulated and connected with complicated instrument systems. Many of these are operations that long have been performed well by women.

Furthermore, electrical-assembly work cuts across the various industries that have been discussed, and others also, as well as occurring in the more specifically electrical industries themselves, such as radio, batteries, generating appliances, communications equipment, and so on. At least some parts of great numbers of products are actuated by electricity, as machine tools, automobiles, ships, and airplanes. In other industries there are shops where electrical repair or maintenance work is done, as in steel mills and foundries. In establishments visited by the Women's Bureau, the work forces in these departments frequently had larger proportions of women than those in the plant as a whole. Often the work the women did was decidedly skilled.

In October 1939 women were a third of all wage earners in the inclusive Census group "electrical machinery" and by February 1944 Bureau of Labor Statistics estimates considered them to be nearly half. As already noted, assemblers were 47 percent of all women in electrical plants visited by the Women's Bureau in a 1942 survey in a large industrial State, and 92 percent of these were doing work that had been done by women before the war.

Most of the chief branches of the electrical industry were covered by two studies of the Bureau of Labor Statistics, one in August 1937, the other 5 years later (9). Comparison shows some increase in the

utilization of women: They comprised a little less than half of all assemblers in the early study, more than half in the later. While in 1937 no women were classed as skilled, in 1942 they were nearly a fourth of Class A bench assemblers. The proportion of all assemblers who were women varied considerably in the different branches of the industry. In 1942 they were approximately as follows:

Industry branch	*Percent women among all assemblers reported*
Electric lamps and radio tubes	100
Insulated wire and cable	79
Electrical measuring instruments	79
Wiring devices and supplies	78
Electrical appliances	68
Carbon products	66
Communications equipment	62
Radios and phonographs	52
Batteries	47
Generating, distribution and industrial apparatus	34
X-ray and therapeutic apparatus	23

Core and coil winding may be considered a part of assembly and in the 1942 study women were two-thirds of all reported on these jobs. They were more than half the solderers, but less than a fifth of the riveters and welders.

An important electrical industry that since its earliest days has been a large employer of women is the manufacture of radios. A Women's Bureau study of this industry in 1929 found one plant in which 84 percent of the women hired during the year were put on assembly work, in contrast to 33 percent of the men so placed. This does not represent the proportion at any one time but is a rough indication of the work done by men and women. Large numbers of women, many more than men, were hired for the assembly of sets, receivers, speakers, condensers, and transmitters. Only as assemblers of consoles and cabinets were the men hired in this plant outnumbered by women (10). In the more recent study, made in the summer of 1942 by the Bureau of Labor Statistics, women were more than half of all assemblers, though none were reported as skilled bench assemblers, or as floor assemblers of any grade (11).

Recent visits to electrical plants have found women doing bench work—assembling small parts of thermostats, wiring and soldering elements, and armature winding. In one plant making communications equipment, the majority of the assemblers were women. In another making motors and generators the work was subdivided so that one group of girls put brushes, screws, and rings on the lower part of rotors; they were then passed to another group who inserted two bakelite panels in the upper part and a metal partition through the middle; the third group fitted the rotor over a bakelite insulator. Men put on the final heavy cage.

Women in the electric shop of a steel mill did assembling on A. C. motors. In another they took apart and reassembled small motors, being classed as helpers. Even in a plant making guns, howitzers, and mortars, visited in November 1943, women in an electrical-assembly department worked on small mechanisms, cables and harness, connecting, soldering, and so on. Some made cables of different sizes and types. Some assembled an entire small mechanism, using a special type of blueprint easy to follow. There were 75 different types to be assembled, so work was not repetitive.

In shipbuilding, considerable electrical assembly is required, and women work on fittings for electric-wiring systems, conduit pipes, lamps, and small switches, and repair and assemble telephones. On board ship they are helpers to the electricians who install switches, lights, telephones, instruments, and fuse boxes. In one yard a woman was reported as able to make the entire telephone installation, with another woman as helper. She had learned to read engineering blueprints and could make all installations from the print. In another yard women were doing electrical wiring, working from simplified blueprints or drawings.

In aircraft production, among the first occupations thought suitable for women were some of those in the electrical workroom. These include wiring and assembly of switch, junction, and jack boxes, work on the instrument panels, and a great variety of other processes. Sometimes parts needed reworking to insure an accurate fit. Most of the work in the electrical, radio, and instrument-panel divisions requires manipulative dexterity of a high degree, and these divisions were among the first to offer new opportunities to women. In 1942 the Women's Bureau found women working on the assembly and preparation of electrical systems—cutting wires, attaching fittings and lugs with screw drivers, arbor presses, and soldering wire to contact points. They were laying out wires on routing boards or jigs, bending them around pegs until a complete harness was assembled. They laced groups of wires together, gave them a protective cover of shellac, and installed them in conduits; soldered on lugs, and attached designations for the final assembly into the plane. The definition of a single type of electrical assembly in the aircraft industry as given in the Dictionary of Occupational Titles (Supplement, Edition II, July 1943, p. 83) gives an idea of the various operations that may be involved. The operations may be subdivided.

> * * * measures and cuts insulated wires of a specific size and kind, using a wire cutter or pliers; tapes fittings on the ends of the wires; threads the wires through conduits and solders the ends to a plug; laces together the wires protruding from the open end of the conduit; wires parts, such as switches, meters, light sockets, and terminal panels, using an assembly sketch as a guide; attaches fittings to junction boxes, using nuts and bolts, inserts wires through openings into box and connects them to specific parts; connects wired junction box to testing apparatus and verifies wiring by connecting the box to testing lights.

A western aircraft plant put 25 women—the first hired—on electrical and radio essembly in the early spring of 1941. In 3 weeks the units produced per week increased by 25 percent, some even by 50 percent. Women fitting 63 different wires into a junction box cut the time from 2 hours to 90 minutes. In this plant a fuselage frame starts down a powered conveyor line. As it passes the various stations, girls install throttles, controls, instrument panels, and so on. Nowhere does a man touch it (12). In the electrical department of another aircraft plant the Women's Bureau found that about 60 percent of the workers were women, who were chiefly sorting, splicing wires, assembling parts, and making installations. On a visit to this plant a year later, it was stated that women's work was not distinguished from men's except that women could not hold jobs that required lifting.

The instruments used on airplanes to control their engines, such as tachometers, manifold pressure gages, and electrical thermometers, are dependent on electrical transmission for their indications. In plants visited by the Women's Bureau as early as 1941, women were employed on much of the work of making these instruments. They were doing part of the winding of armatures, field coils, and stators; coil taping and forming; assembling armatures and commutators; soldering and connecting wires; and other electrical operations.

At an airport visited in November 1943, women in the shops did a great variety of light bench work, assembling radio harness for planes, soldering, and so on. Some six or seven new electrical harnesses are made for each plane, and women do a great variety of small assembly on them.

Machine-tool making involves some electrical work, such as the wiring and installation of motors, switch boxes, and electric panels. Of 15 such plants inspected by the Women's Bureau in 1942, 8 employed women on production and 2 of these used them for electrical assembly. The work of these women consisted of wiring panel boxes, soldering, cutting wires, attaching wires to terminals, and similar bench operations. A third company planned to put women on panel wiring soon. Work tables with pigeon holes had been constructed for the various parts to be used, and the women were to follow numbered diagrams that had been broken down and simplified by the engineering department.

In another machine-tool plant visited in 1943 women were doing electric-panel-board assembly exclusively and were considered better than men ever had been. Management would like to have women on this work after the war. At least one electric panel board is assembled for each machine made. The boards are a little different for each, but there are some similarities and panels fall into four general types. The girls followed blueprints at first but had learned to work so well that usually they could get along without them.

INSPECTION

Most types of manufacture provide for inspection of the product, usually at various points in the manufacturing process. This is a prominent feature, for example, in the metal-goods and machinery industries, where greater and greater precision is demanded in the product. Parts must fit accurately in order to function according to the high standards required. Parts also must be interchangeable, so that replacements may be made from stock on such equipment as machines or automobiles. This precision is secured by inspection at various stages of production, which may involve merely looking at the part for obvious defects or may require exacting measurements for variations from required dimensions of not more than one-thousandth, or perhaps a ten-thousandth, of an inch. With the trend toward greater accuracy, there have been perfected measuring devices so largely automatic that some inspection processes are quickly and easily learned. This trend also calls for more inspectors, whether men or women, in relation to workers on production. Besides inspection at various stages of production, examination is made also of parts that may be shipped in from other plants for use in a more complete assembly.

Testing is a form of inspection. It may involve determination of certain qualities, such as hardness of a piece of metal. It is often the trial of a completed mechanism to see that it functions as it should. A very simple form of testing is to screw an electric light bulb into a socket to see whether or not it will burn. Very elaborate tests are made of airplane engines by setting them up and running them in a testing cell, keeping watch of various gages and making careful records of performance. Such a test may take 4 to 5 hours.

Inspection as an Occupation for Women.

The report of women's employment made nearly 40 years ago—in 1907 and 1908—shows that women were engaged as inspectors at that time. In the making of incandescent electric lamps, women even then comprised about four-fifths of all workers. They were testing carbons, filaments, coil testing, and doing the final inspection. The report states "The operators engaged in this inspection must have a great deal of experience and judgment * * *." They also were inspecting bolts and screws, type, tin plate, cutlery, gun barrels, and parts of locks. Of the last named the report states, "This is exacting work, since the inspector must note and reject imperfect parts for the most trifling error." In can factories women were testing finished cans for leaks (13).

During the First World War, women's employment in the metal industries increased greatly and they were substituted for men as inspectors as well as in other occupations. The description of their work is not unlike a present-day description: "Here very often parts have to be accurate to the thousandth of an inch. Women employed as inspectors had to learn how to use gages, read micrometers, and vernier calipers. Many learned to read blueprints and to use the Scleroscope (for testing hardness)." Women were reported as replacing men inspectors in 27 different industries. About two-thirds of the firms reporting on the relative output of men and women declared women to have been as fast or faster than men. One firm stated that its records showed women to have turned out 20 percent more than men on 3-inch trench-mortar shells. Of the firms describing conditions in 1919, over 70 percent had continued to employ women for inspection (14).

One-sixth of the women employed in over 125 plants, in a large industrial State surveyed by the Women's Bureau in 1942, were inspectors or testers. Three-fourths of these were doing what had been women's work before the war, about 15 percent were replacing men, and 11 percent were on work new to the plant. Inspection as an opening for women varied in importance by industry, as the following shows:

	Percent of all women who were inspectors and testers
Metal parts, small	38
Aircraft engines and propellers	31
Plastic products	28
Ammunition, gun parts, and other ordnance accessories	24
Machines and machine tools	23
Instruments, professional, scientific, and other	22
Rubber products	13
Electrical products	11
Chemicals and drugs	4

While inspection was a new occupation for all the women reported in aircraft parts and chemicals and drugs, it was a prewar occupation for all in plastic and rubber products (15).

Officials interviewed by the Women's Bureau often speak of inspection as being well suited to women if parts and gages handled are not too heavy. The foreman in a machine-tool company reported that women picked up the work faster than men, followed instructions better, and were more careful in making precise measurements and checks. In aircraft plants women inspected small parts and castings for defects and tested for hardness. Foremen stated that men were apt to become bored with this type of work and that women were more satisfactory. In one aircraft-parts plant women were replacing men on highly skilled inspection work and were very successful. According to the superintendent of inspection, women at the end of a 3-months' training period were the equal of men with 6 months' experience.

Training of Women Inspectors.

Women's Bureau studies of war plants show some of the policies regarding on-the-job training. In one plant women were learning to be inspectors while doing some productive process. These usually were short runs of different kinds of work. A girl would learn to use one gage applicable to the work in progress; the next run of work might require another type, and thus the girl learned the various types gradually. Under a similar system in another plant women were receiving the kind of training that would make them all-round inspectors. Rarely were as many as 200 parts of one type made. This plant considered women most skilled and most useful as inspectors. In a third plant a combination method was found suitable. Women who disliked to change were allowed to learn one type of inspection and could achieve great speed, which was a valuable asset. Others who would find the repetition monotonous were taught the different methods. Their versatility made them equally useful.

In one of these plants women taking the inspection course attended 6 hours a week for 12 to 14 weeks. They learned blueprint reading and the use of all precision instruments, and acquired an understanding of shop processes. As to details, they learned the tools used in setting up work for inspection, such as plates, squares, and protractors of various kinds; several different kinds of micrometers, some 20 different kinds of gages, dial indicators, and comparators. Most of the students in these classes were women.

During the second half of 1943 and the first 4 months of 1944, nearly two-thirds of all persons enrolled in the Government classes for inspectors' supplementary training were women. About 5,150 of these were in aircraft plants alone, some 8,500 in all other industries.

Systems of Inspection.

Inspection may be delayed until the product is finished, and this would be a suitable method for a very simple article. Usually, however, it has been found more and more necessary to make frequent checks at various stages of the work. This is especially true when many parts are brought together to make a finished whole. All must meet the standards set up by the engineers or they will not fit together and adequately serve their purpose. Inspection saves time and mate-

rial. If a deviation from standard is caught at the right moment it may be corrected. Inspection may show faulty working of some machine, which if not adjusted would result in a continued production of scrap and a waste of the machine operator's time.

Under a customary system in plants visited by the Women's Bureau, inspection starts with machine operators who do some checking on their own work. General or roving inspectors make spot checks at the machines. Then final inspection is done at benches or on a line. A variety of gages are used.

In the aircraft plants, women inspectors in 1942 were engaged chiefly in checking to order specifications such incoming purchased parts as valves, rivets, bearings, and clamps. They inspected small castings for internal defects, using Magnaflux testing equipment, and tested the hardness of metal on Rockwell, Brinell, or Scleroscope testers. During fabrication, forming, and assembly, inspection is continuous, and women were employed in departments where they constituted a substantial part of the group, such as in the fabric, electrical, and tubing sections. By the spring and summer of 1943 there had been a great increase in the employment of women in the inspection of aircraft parts.

In machine-tool factories studied in 1942, the organization and arrangement of inspection differed from plant to plant. Women were doing in-process inspection, and a few made the final inspections of small parts. Most read blueprints and used a variety of precision instruments. Some plants had inspection centers where any work done in a department was thoroughly checked before being sent on for further processing. The line or general inspectors, employed on the floor by some companies to go through the departments and check on any work that appeared to need it, usually are highly skilled workmen capable of doing any kind of work, and no women were so employed.

Inspection that keeps pace with other processes is well illustrated in the work on percussion fuzes and powder-train time fuzes. For one of the more complicated types, 38 operations are listed, including machining, assembly, and five inspections of parts or of assemblies, done in many cases by women. In the making of barrels for small arms there are 41 principal machine operations. In this sequence there are over 30 inspections, including visual, gage, and Magnaflux, hardness testing, and inspection of line straightening. Women participated in most of these.

A typical large plant making automobile accessories, electrical equipment, and radios both before and during the war, formerly placed great reliance on final inspection. War demands for increased exactitude and speed developed the system of full inspection of parts at every step—10 percent spot checking on minor dimensions and 100 percent on major and critical ones. The inspection staff has been increased to more than 6 times its former size, though the total force is only something more than double the prewar force. For detail inspection at benches, the company has long employed women on small parts where delicate finger touch is an advantage.

At the head of the system for securing precision in this plant is the set-up inspector—a man seasoned and expert. He devotes his whole time to first samples of parts coming off a machine, checking them according to the operation lay-out sheets and blueprints involved, as

prepared by the tool lay-out engineers. When he tags a part as correct it is turned over to a floor inspector with instruction as to what to look for. As a rule each floor inspector checks on the output of 25 machines and is responsible for seeing that parts produced are of the quality approved by the set-up inspector. When qualified men floor inspectors left to enter the services women were trained to replace them with very favorable results. When gages are light they have been found most capable (16).

Skills Required in Inspection.

It can be seen from the discussion of training and of inspection systems that the skills required vary greatly with the product, the type of set-up, the degree of subdivision, and so on. Some types are simple repetitive operations that demand but little judgment. Many gages and testing appliances are simple and quickly learned. Some plants keep women on one type of appliance exclusively, others introduce them to the use of several, often a considerable number. Illustrating work that was relatively simple, though fatiguing because very fast and monotonous, is the inspection by women of belt links for ammunition. They sat beside a rapidly moving belt piled with links. Each woman took off as many as she could inspect. Any that were missed passed the line of workers again. Each link was placed over a small gage. If defective, a red light flashed. After the belt was installed, the women had to learn to look above and not at it. Individual records showed 15,000 or 16,000 links inspected in 8 hours, with one unusual record of 20,000.

Other kinds of inspection follow an involved process that places a great deal of responsibility on the worker, who must have considerable experience. This is especially true of certain testing operations. An example is the work of women in two small-arms factories, inspecting gages used in checking on the plant product. Since the accuracy of the products manufactured depends on the correctness of the gages and dies, this work requires great care and skill. Also necessary is a certain knowledge of mathematics, and use of a wide range of measuring instruments. Typical of the devices used in this work were optical comparators, shadowgraphs, Carl Zeiss toolmakers' microscopes, Pratt and Whitney supermicrometers, vernier height gages and depth gages, calipers, micrometers, Rockwell hardness-testing machines, and Johansson gage blocks. Gage inspection was done by women in some cannon factories also. Only college graduates were employed.

An even heavier responsibility rests on a group of some 60 women who work in New York City as inspectors for the gage division of the Inspection Board of the United Kingdom and Canada. They inspect the gages that are used in the checking of all munitions for the lend lease program to insure interchangeability of parts. They use precision instruments that measure within millionths of an inch. In recruiting women to be trained for this work the board looked for college and university graduates with an "analytical mind" who had majored in mathematics or physics. The first four began their special training in January 1941. They are still at work. The first-class technical assistant in charge thinks these women are less like "prima donnas" than most men doing the same exacting work.

Calibration of instruments is a responsible job done by women, and covers testing, adjusting, balancing, and measuring their performance

according to definite standards. Calculations and computations may be necessary and the calibrator of the more intricate instruments needs a working knowledge of mathematics and the principles of physics involved. In all but one of the plants visited by agents of the Women's Bureau only men did this work. In the one exception a woman was calibrating suction gages, which are among the simpler instruments. In the making of gyroscopic instruments women were doing practically all the testing on the smaller rotors, including testing of spring tension, making run tests to ease parts, and vibration tests to detect the slightest friction in movement.

In one plant manufacturing fittings and castings and doing precision work, intelligent girls with a better-than-average education were selected to make final inspection tests. They checked all parts in operation, doing any necessary adjusting with hand tools. They then figured out various test problems to check the use of the instruments.

Another exacting type of inspection in which women participated to varying degrees in several plants visited is in the testing of aircraft engines. The engine is set up, with propeller attached, in a testing cell. The operator or operators direct and watch the "test run" through the window of an adjoining room. There is a control panel with as many as 79 instruments, most of which are similar to those on the instrument panel of large aircraft. The engine is run at different speeds, and acceleration, idle, and dive tests are performed. Pressures and temperatures are observed and recorded; fuel and oil consumption under various conditions, and operation under various propeller settings and speeds, are checked. The operator who is working alone must watch the engine and the panel board, make calculations, and keep records (17).

After an aircraft engine has been tested, it is disassembled and all parts are given close inspection for flaws, signs of wear, and failure to function or possibility of such failure. In a plant where men had always done this work, a few women had recently been employed and a new group was being trained.

In the engine plants women were found doing the computing for the log sheets, using a slide rule. In one plant testing was done by a team of a woman and 1 or 2 men. About 80 girls were so employed. Usually they learned the work in about 2 months. In another plant where women were operators in the test cells, they did practically all the work but ordinarily there was 1 skilled man with every 6 women. At an air station where engines are tested after flights, a woman operator works alone and is entirely responsible for the engine. Another operator in the same space and testing another engine may act as relief, since tests take from 5 to 8 hours.

OPERATION OF MACHINES

The war industries make extensive use of metals, and their fabrication into the various required parts includes shaping by means of machines or hand tools. The chief machines for shaping metal products by the removal of particles of the material, known as machine tools, are milling machines, drilling, reaming, and honing machines, gear-cutting machines, broaches, grinders, and automatic, engine, and turret lathes.

Such equipment is produced in a great variety of types and sizes. Each machine may be built for either of two purposes: (1) To perform various operations on miscellaneous pieces or (2) to perform the same operation or operations on quantities of one piece. The first type is for short runs, is extremely flexible, and ordinarily is operated by a skilled machinist. The second kind of machine is for mass-production purposes, and often has groups of tools working at the same time; it may be partly or fully automatic, so that the operator has only to load, start, stop, and unload it. Besides machine tools, other common metal-working machines are punch presses for punching holes in stock or for cutting small parts out of stock, and forming or stamping machines or presses for shaping metal parts.

The proportion of all workers who operate these diverse machines varies with the product. Factories assembling airplanes and automobiles from purchased parts will have relatively fewer machine operators than plants that make the smaller parts or the entire product from the raw materials. In the machine-tool plants studied by the Women's Bureau, about half the men and nearly two-fifths of the women were in the machining units, most of them operators. In the making of small arms, nearly two-thirds of all factory employees worked on machines.

In aircraft-assembly plants not more, and usually less, than 10 percent of all employees are in the machine shop. Bureau of Labor Statistics studies show that in 1940 13 percent of all employees in automobile manufacture were machine-tool or punch and press operators, compared with about one-fourth of those in automobile-parts plants. Bureau of Labor Statistics studies of the manufacture of aircraft parts show that about one-fifth of the workers on the first shift operate such machines (18).

An example of the extent to which machine operation is necessary in metal fabrication is the making of the 30-caliber Browning machine gun (air cooled). This has 189 parts, with 1,800 separate machine operations. The large amount of metal that must be removed by gradual machining is shown in the work done on a number of the parts. The raw stock and forgings for one type of gun weigh 100 pounds, the finished steel parts only 18 pounds. Among the major components are the gun-body forging, weighing 45 pounds in contrast to the finished gun body's 5½ pounds, the barrel forging weighing 10 pounds and the finished barrel 6, the slide-butt forging weighing 22 pounds and the finished slide butt 4.

Women as Machine Operators.

Though the number of women operating machines in metal-goods plants has increased so greatly during the war, this is by no means a new type of occupation for women. In the early survey of 1907 and 1908 it was stated that "a very large proportion of women employed in this group of industries are working as machine operators * * *" (19). Some of the machines particularly noted, with the product worked on, were as follows:

Brass ware and other metals	Foot and power presses. Stamping presses. Drill presses.
Cans and boxes, tin	Punch presses.

Clocks and watches	Automatic screw machines.
	Lathes.
	Drill presses.
	Milling machines.
Hardware	Power presses.
	Dial presses.
	Milling machines.
	Lathes.
	Automatic screw machines.
Nuts, bolts, and screws	Cutting machines.
	Nut tapper (drilling operations).
	Punch presses.
Stamped ware	Forming presses.

A study of the position of women during and after the First World War revealed that more than four-fifths of the women substituted for men in metal-working industries were put on machine processes fairly similar, in occupation if not in method, to those performed today on metal work (20). Women were very successful, and well over half of the firms reporting had retained women on each type of machine in 1919, as the following shows:

Machines	*Percent of firms retaining women in 1919*
Gear cutters and shapers	86
Grinders and polishers	69
Milling machines	68
Drill presses	66
Punch presses	59
Lathes	57

Every one of the firms employing women on milling in this World War I survey reported favorably on their work. One element entering into their success undoubtedly was the fact that the parts being processed usually were small. To set up work correctly in milling machines requires considerable skill, though to operate the machine after it is set up requires little. Some women were able to set up their machines and grind the tools after a month's practice, some took as much as a year. Three firms keeping actual output records found that women averaged more than men on identical work.

In the First World War more firms substituted women on drilling than on any other occupation. Most of the work was done on light and medium machines having from 1 to 16 spindles. Not only were holes rough-drilled, but they were reamed to overcome drilling defects, tapped to produce internal screw threads, counter sunk and counter bored to enlarge the upper end or to form a shoulder at the lower end. The great majority of the firms reported that women were more attentive and conscientious than men. Some of the women put in their own tools and ground them. Figures as to output on identical work under the same conditions were secured from 3 firms. In 2 of the 3, women's output exceeded men's.

The lathe performs a greater variety of processes than does any other machine, and on the whole operating a lathe calls for greater ability and judgment. More than two-thirds of the firms surveyed after World War I reported women's output on lathes as equal to or greater than men's. Their success is all the more significant because, compared to other kinds of work, they had failed most frequently in this due to lack of experience or to insufficient strength. In a list of 10 lathe operations performed by women on shells they had learned

on 6 to set up the work, test the cut, grind the tools, shift the belts, and clean the machine. Of 20 firms reporting on the relative production of men and women on turret lathes, 5 stated that women produced as much as men, 5 that they produced more, and 10 that they produced less.

When only a small amount of metal must be removed to bring the work to correct measurements, or when a smooth surface is wanted, it is ground or polished. Also, there is much grinding or sharpening of tools in connection with all machine-shop work. An employer using women to grind the bores of cylinders said, "Women have better eyes for symmetry." In one establishment a woman on automatic saw grinding operated 14 machines, a man with longer experience 5. In another plant the average output of women on rough and finished tool grinding was nearly twice that of men. A firm that reported a smaller output for women than for men on polishing stated that the quality of work done by the women was better (20).

A State survey in 1942 covering more than 125 war plants reported that over one-tenth of the women employed were operators of machine tools or of punch and forming presses. It is not surprising that the proportion was considerably greater than this in certain industries, as appears in the following:

Industry	*Percent of all women who were machine-tool or punch- and forming-press operators*
Machine and machine tools	29
Aircraft engines and propellers	27
Instruments, professional, scientific, and other	18
Ammunition, gun parts, and other ordnance accessories	17
Metal parts, small	16

It is of significance that larger percents of the women at work on the punch, forming, and drill presses had been similarly employed before the war, though certain other machine occupations reported were new to women in the plants studied.

Occupation	*Percent of women on prewar occupations*
Punch- and forming-press operators	67
Drill-press operator	41
Lathe and screw-machine operator	25
Grinding-machine operator	9
Milling-machine operator	7
Gear-cutting-machine operator	None

The New York Department of Labor made a survey of the replacement of men by women in the first year of United States participation in the present war. Data were secured from reports of plants that were granted relaxation from State labor laws in connection with war production (21). Of the plants reporting substitution of women for men, almost half were manufacturing iron and steel and other metal products, machinery, and transportation equipment. The proportion of plants that had replaced men with women on the chief machine processes was as follows:

Occupation	*Percent of plants that replaced men with women*
Drill-press operator	33
Filer, grinder, buffer	15
Milling-machine operator	17
Lathe operator	17
Punch-press, power-press operator	12
Screw-machine operator	7

The extent of women's employment on machines in a mass-production industry is illustrated by the Women's Bureau survey of small-arms manufacture in 1942. Women were about one-fifth of all machine operators in the factories inspected, but their utilization varied greatly from plant to plant and department to department. They were 6 percent of the workers in the lathe and screw-machine departments, though not all operated machines. In some machining departments the proportion of women ran as high as 60 percent; yet one plant had no women so employed. In one plant almost 80 percent of the drill-press operators and 30 percent of the milling-machine operators were women. Three plants employed women extensively on turret, engine, and bench lathes, while two others had no women on such work. One plant had 21 percent women in its barrel-machining department, where they operated milling machines, engine and automatic lathes, drill presses, grinders, broaches, reamers, and other specialized machines.

Training for Machine Operation.

Women, ordinarily not familiar with machines, need more training than men for some of these operations, but they are quick to recognize this need. Instructors state that women bombard them with questions, and demand more attention on their training projects. They are much more meticulous in following detailed instructions, and are less likely to slur over or pass up specifications.

Training for machine operation in general includes learning the names of tools and parts of the machine, care of tools, reading of blueprints, and use of measuring instruments, as well as the actual operation of the machine, often of a number of machines.

During the 10 months ending April 30, 1944, some 33,600 employed women had enrolled in supplementary classes for machine-shop practice, more than a third of all such trainees. In addition, about 7,000 women were in training as aircraft mechanics (maintenance) or automotive mechanics and outside or marine machinists.

A report made by the supervisor of training in a New England school as to women's capabilities in such instruction is typical—that the women listened more carefully than men to instructions and were more painstaking in their work. They were slower than men at first, but their spoilage was less. He stated that women were able to work to close tolerances in a very short time.

Skills Required for Machine Operation.

The basic metal-working machines cannot be listed in order of ease or difficulty of operation, since this varies according to size, type, and so forth. The most complicated machine, requiring the greatest skill to set up ready to operate, may be the most automatic, the most easily learned, and the simplest to run.

In mass-production industries a machine setter selects the proper tool, which has been sharpened; fixes it in the machine; and adjusts the machine for the work in progress. Often an indicator is set to determine the point at which the process is to be stopped. The machine operator then takes hold. If quantities of the same piece are processed, the run may keep her busy for a day or two. She has merely to load and unload the machine, to start and stop it. Under this arrangement an operator may run 6 to 8 machines. It may be more practical to keep the worker—whether man or woman—con-

tinuously on the one type of operation, and there may be no economic advantage in teaching the setting up, tool grinding, and so on. The operator may, however, make spot checks of the dimensions of the parts as they are finished. In small-arms manufacture, the usual practice was to have machine setters for all machines.

Simplification of Machine Operation.—Various things can be done through planning and design to simplify work for the operator. As one executive has said, "Owing to development and design, the machine tool now does the physical work which formerly was done by the operator. The machine tool has within itself the precision and the power needed to get the job done. All that the operator has to do is to have the intelligence and the dexterity to operate the machine." It was pointed out in connection with a precision grinding operation that it is the machine that is precise.

In some machine-tool plants, good tooling has replaced individual skill. In one case, for example, the inside chasing of threads was eliminated by standardizing the thread and size of hole and then buying 4 or 5 expensive taps by which the job could be done with much less skilled attention. A woman operating a rifling machine had to perform 32 separate operations, but the company had developed a system of laying out the cutters and tools to be used, in proper order; also tools were correctly ground for the work.

Proficiency of Women in Various Machine Operations.—There is plenty of evidence in Women's Bureau reports that women are doing some of the skilled preparatory work—the set-up, selection of tools, their grinding, and so forth—and working to blueprint specifications rather than with dimensions automatically governed by the machine. Women have demonstrated ability for independent work. For example, in the toolroom of one large plant visited, 8 women were grinding cutters and taking care of tools, 1 was repairing dies and was learning to make them. The women were improving steadily, but it is obvious that in work that requires a considerable training period for any new employee, they would have to be there from 9 months to a year before they would be really useful. In the same plant two women were learning to do skilled machine repair. In one small-arms plant the largest single occupational group of women, aside from inspectors, were those in the toolroom, where 40 percent were women. The toolroom force for all plants was 11 percent women. They were most frequently making cutters, reamers, end mills, gages, and drawbars. Some women were setting up their own machines and more were learning this part of the work. In another plant women in the tool crib sharpening tools did as good work as any man. Two had been there a year and needed no help of any kind.

In the machine shop women were placed on the less complicated machines. However, they were not mere routine workers but had learned blueprint reading and set-up on the job so that they could take increasing responsibility. On turning precision bearings and hand wheels, women made better records than men and earned more production bonus, and at least one was doing her own set-up work. Some women on precision grinding were working to one or two ten-thousandths of an inch and checking their work.

Operation of More Than One Kind of Machine.—Even where work is simplified, more skill is required if the operator is shifted from

one machine to another. Whether or not this is done depends chiefly on the demands of the work. Toolrooms for maintenance of plant equipment are far more likely to shift workers from machine to machine than are departments doing machining of the product. Having one person run more than one machine was a rather common practice in small-arms plants. Either a series of operations was performed on one part, using one machine at a time, or concomitant operations were performed by keeping all machines going at once. Where several machines are operated at one time, the speed is not so great and the machining cycle is longer. Examples of combinations of machines operated both by men and by women are as follows:

Cincinnati power mill No. 0–8, hand mill, and drill press.
Brown & Sharpe mill No. 000, 3 machines operated by one person.
Fellows gear shaper, 3 machines operated by one person.
Cincinnati mill No. 1–12 and a drill press.
Automatic profiler and a drill press.
Natco drill (multiple spindle), Leland Gifford drill, and Cincinnati mill No. 0–8.
Hand mill, bench profiler, and two Cincinnati mills No. 0–8.
Pratt & Whitney profiler and 3 hand mills.
Two hand mills and one Milwaukee mill Model H.

Progression in machine operation for women in aircraft-assembly plants appeared often to be from jig drilling to sensitive drilling; when the operator had attained skill in sharpening and changing her drills, if she worked in a production shop she might be upgraded to operating a milling machine. In a plant making many small parts for aircraft engines, a girl who became bored with a monotonous job could be advanced to more complicated machines or more skilled inspection. In upgrading women it was found that it took about 4 months to make a hand screw-machine operator and about a year to make an all-round grinder.

Grinding Processes Numerous in Metal Work.—In a survey of machine-tool plants women were found employed to a greater extent on grinding than on any other kind of machining, though much of it was precision work done to very close tolerance. They do all kinds of grinding such as magnetic, chuck and surface grinding; centerless, internal and external grinding; tool grinding, and so on. In one plant women grinding involute cutters and gears operated two machines each. They performed their own set-up and dressed their own wheels. It had taken them about two months on the job to learn the set-up work. In the same plant a woman grinding tapers on shanks was doing her own set-up work and was allowed practically no tolerance, according to a company official. In another plant several women who were form grinding also set up their own work. Each new set-up had at least to be checked for every tool ground, and the tolerance allowed was but .0002 inch. In another factory women on surface grinders were at first allowed a tolerance of .0005 inch but later were upgraded to more difficult work on which they were permitted only .0002-inch leeway. One of them, employed only 10 weeks at the time of the survey, already was performing a complicated set-up involving compound angles and requiring the use of sine bars and Jo blocks.

Women grinders on small parts in aircraft-assembly plants were able to follow blueprints, measure with calipers, micrometers, and scales, dress their grinding wheels if necessary, and generally follow

work specifications. Dressing the grinding wheel involves cutting the worn wheel to true the surface. The wheel is mounted on a power-rotated spindle and the surface cut with a diamond-pointed cutting tool (22). Where it was customary for drill-press operators to change and sharpen their own, the women usually were doing this. A few women had full-time jobs dressing the points and grinding the cutting surfaces of drill tools to specified angles and shapes.

Many Machine Operations Require Special Skills.—In the machine-tool industry, a great many operations that need special skill and accuracy remain even where process simplification has been accomplished. Though women have been in such plants for only a relatively short time, they already were doing accurate work on jobs requiring, for example, machining to a tolerance of .0002 inch, or a fifteenth part of the diameter of a hair. Where small lots were common, some women already were learning the setting up of their own machines in 6 of the 8 plants having women on production work. One of these had no special set-up men, since women were expected to set up all the machines they operated.

In one plant they were cutting the teeth on broaches on fairly large lathes. They were required to read blueprints and mark out their own work. Each type of cutter on which women were engaged had a different pitch of teeth, so they had to be able to mark out numerous kinds of work. In one of two plants employing women on gear cutting, each operated two to five machines and did her own set-up work.

Machine operators had to be somewhat more versatile in the manufacture of cannon than in some industries, shifting from one type of work to another, since there is not a great volume of production of parts of any one kind. Women did this as well as men, including the setting-up of machines. Machine operators checked their own work with calipers, micrometers, and fixed gages; sometimes they did filing and burring of parts. The extent to which they filed or burred depended on the machining cycle and the number of machines operated.

A few women in the maintenance machine shops of steel mills were operating lathes, drill presses, milling machines, shapers, and grinders. In several plants they were doing part or all of their own set-up work. In at least two plants each worked on a number of machines. In one plant a woman in the carpenter shop running an automatic sharpener worked on all kinds of saws. She learned the work more quickly than the men and did better work.

Workers must be experienced, skilled, and mechanically minded in the instrument field, and for this reason at first women were received very slowly as machine operators in this industry. However, some women worked on small machine-drills and punch presses, milling machines, lathes, and so forth. In two instances women milling operators made their own set-ups. On certain processes the quantity and quality of workmanship was reported as about the same for men and women.

Dental burrs and broaches are manufactured in about 150 styles and are made almost entirely by women, who were straightening, cutting, and inscribing the trade-mark on wire used as raw stock. Semiautomatic and automatic machines are used for forming the ends of burrs. Broaches are ground and tapered on fine carborundum wheels and barbs are cut on a special bench machine. The operations are checked under a microscope.

The Problem of Heavy Work.

Machine tools range in size from those small enough to mount on a bench and weighing only a hundred pounds, to giants that stand as high as a three-story house and weigh several hundred tons. Many of the machines used in making cannon have beds over 200 feet long. In general the large machines are for the processing of large parts. There is the weight not only of the stock but of the jigs and fixtures to be considered. On some machines considerable effort is required to tighten the work in place and later to release it, and tools for this purpose also are likely to be heavy. A large machine may require a tall person with a long reach to manipulate it.

These are not insuperable obstacles to the employment of women, however, and have been met in various plants. Men as well as women are unable to lift by hand all the parts involved without the use of chain hoists or other mechanical lifting devices, and such devices are very generally a part of the equipment of most large modern machine shops. Power chucks are installed in some cases to avoid the necessity of exerting great physical effort in tightening pieces in the machine. It is probable that newer factories will be provided with these labor-saving devices, whether men or women are to be employed. The increased production possible would make them an economy, and they save workers' time for the job skills.

Women have been able to do a considerable share of the work on larger parts in small-arms manufacture, due to management's constant search for improved production techniques to lighten machine operations. New fixtures were designed to replace the heavy arbors for holding the cutting tools; benches or machines were raised or lowered to improve work lay-out and reduce lifting; conveyors were installed to slide parts from one machine to another. Through use of these measures women in one plant comprised from a third to considerably over a half of all machine operators in the various departments making large parts.

Proper selection of the workers for the job also is important. In both small-arms and cannon plants it was stated that tall women are chosen for work on the larger machines, since they can more readily reach the multiplicity of controls. A woman more than ordinarily robust may be perfectly capable of exerting the necessary force to manipulate the levers, hand wheels, and turnstiles. There still will remain work that is beyond the average woman's strength but well within that of the average man and in some cases of the exceptional woman.

There remains the possibility of separating light work from heavy so that women may be assigned to the light work. Both light and heavy pieces often were processed on the same machine in the machine-tool industry, and at least one employer expressed the opinion that a readjustment, while perfectly possible, would be less efficient. In another plant, with a different arrangement of the flow of work, small tools in two machining departments already were separated from the medium and large, the lighter work being at one end of the room, the heavy at the other. The smaller parts were being routed separately in these two departments, though no women were employed there nor was their employment anticipated. In two plants, such separation of work on turret lathes had been made in order to give the smaller work

to women. In small-arms factories women most frequently were employed in the general machining departments where smaller parts were made. In the plant making the most extensive use of women they were 57 percent of all workers in such a department.

Women operated the same makes and types of machines as men in a large plant making aircraft engines. Women operated all 35 types of machines used in this mass-production plant, and at the time of visit they constituted a third of all machine operators (600 of 1,800). The only difference was that men were used in departments where heavy parts of engines were worked on, where machines were larger and the parts, jigs, and fixtures heavier. Both men and women operators were taught to follow blueprints, inspect their own work, see that the machines were running correctly, do their own degreasing and some of their own set-up. There were, however, skilled set-up men, 1 for every 8 to 10 operators, whether men or women. Other establishments reported practically the same arrangement.

PACKING AND WRAPPING

Unless the finished product moves out of the plant under its own power there is usually necessary some kind of packaging, wrapping, or crating to prepare the article for shipment. Packing of small finished products or of small parts for assembly in another plant is especially suitable for women. In one of the aircraft-engine plants, for example, 85 to 90 percent of the wrapping and packing of spare parts for replacement was done by women. Packaging furnishes protection to the item and, in peacetime, eye appeal to the consumer. The finished package must be strong, compact, neat, and often attractive. Though not calling for much skill, packing does require some dexterity and usually considerable speed. Stamping or labeling may be done in packing departments; sometimes also loading and unloading and other operations that may be designated as warehouse work.

In the wartime metal industries surveyed by the Women's Bureau, packing operations were being performed by women. In small-arms-ammunition plants, for example, women set up cartons, packed cartridges in pasteboard containers and then in the cartons, and hand-pasted labels on the outside. They were doing similar work in factories making artillery ammunition. In some instances each completed fuze was placed in an individual cardboard container. Boxes were taped and dipped in wax to make them waterproof. Women were employed also in stamping or stenciling on the container information as to the kind of fuze, primer, or booster it contained, the lot number, and any other essential data. Usually final packing is done in boxes of fairly large size by men, as the work at this stage is too heavy for women.

About 30 percent of the packers in small-arms plants were women, and most of them were counters, sorters, wrappers, and packers of spare parts. Parts greased or oiled were wrapped in heavy oil paper before packing in envelopes, cartons, or boxes. A few women were nailing metal strips around large packing boxes.

With some types of packing, speed is the chief essential. In a tinware plant a girl was packing gallon cans. Working very rapidly, she picked up 4 with one hand and 2 with the other from a moving conveyor and placed them in a carton, which another girl set up and

opened for her; this second girl then closed the carton and sent it along another conveyor to an automatic gluing machine. Women feeding packaged safety matches to a machine that wrapped them had to work quickly and pay close attention, as the packages passed them very rapidly on a moving belt.

The foregoing apply to newer war plants, but wrapping and packing long has been a type of job performed by women. A few descriptions of women's work as packers of metal products in 1907 and 1908 (23) follow:

> *Hardware*—The small articles * * * are usually packed in cartons by the dozen, the gross or singly. * * * Sometimes the articles are first wrapped in tissue paper to keep them from getting scratched or tarnished. * * * Care is required * * * to get the packages up in neat and attractive form and to see that each has the specified contents.
>
> *Needles and pins*—The long strips of paper (filled with pins) from the sticking machine come to the folders, who cut them into proper lengths for a paper of pins, then fold each paper and place * * * a dozen papers in each box. Cheap pins * * * are wrapped in packages.
>
> *Nuts, bolts, and screws*—Bolts (with the nut screwed on), are sorted, inspected, piled together, packed in paper cartons or boxes, sealed and labeled.
>
> *Stamped and enameled ware*—Labels were stamped, pasted, and stuck to the ware, the ware was wrapped in a sheet of paper, another label pasted on the outside and the parcel set aside. * * * Hollow articles, like pails, which can be put one inside another or "nested" are stacked as high as the wrapper can reach.

In food industries Women's Bureau studies report a great deal of packing and wrapping done by women, both in war and in peace times. A study of these operations made by the New York Department of Labor in 1936 reported on nearly 10,000 women, practically 60 percent of whom were in food industries, most of the remainder packing cosmetics and drugs. In meat plants women have long packed sausages, wrapped hams, arranged sliced bacon in cartons or cellophane wrappings, or put chipped beef into cellophane envelopes or glass cans. In all cases care must be taken that the resulting package has an attractive appearance. At the same time considerable speed is required. Some packaging is done by machine—for example, the filling of pound containers with lard. Cartons are set up with an inner lining, the lard is poured and cooled, and the packages are closed automatically. Girls are employed at different points on the line to see that all is going smoothly, to take off defective packages, and generally to prevent anything from interfering with rapid progress.

The multitudinous forms in which candy is put out indicate the amount of wrapping and packing that must be done. Wrapping often is done by automatic machines. In candy factories studied by the Women's Bureau in 1920 and 1921, 45 percent of the women were wrappers and packers, such women comprising 96 percent of all persons on these processes. These operations in the main require speed rather than judgment or skill.

The following description of women packing biscuits (crackers) from the 1907–08 study of woman and child workers shows the kind of skill involved in many packing processes, regardless of the product:

> The packers stand on each side of a table along which a moving runway carries the biscuits about at the level of the packers' waists, while another carries along the empty cartons about at the level of their heads. The lids and flaps of each carton still stand up straight when it reaches the packer, so that no time is lost in opening it. Taking the carton in her left hand, the packer takes up a handful of biscuits in the right hand and places them in the

carton. A good packer will nearly always fill a box with two handfuls of biscuits, and quite often will do it with only one. A packer is expected to watch carefully to see that she does not pack any misshaped or broken or scorched biscuits; she must not pack her carton either too tight or too loose; she must be sure that the biscuits are all turned one way; and she must not accept an imperfert carton for packing (24).

Packing and wrapping and other concomitant occupations are important in both cigar and cigarette manufacture. At one time packing of cigars was a skilled occupation, as cigars were sorted by color and shade before being packed in boxes. With the introduction of foil or cellophane wrapping, sorting and shading became less important, and more women were employed on the simpler processes as well as in banding and labeling.

The putting of cigarettes in the standard-size packs has long been done by machines, usually operated by women. The development has been to make the machines more and more automatic and capable of performing more processes, such as the pasting on of the revenue stamp and the putting of the wrapper around the package. Hand packing is done only when the type of container is used so infrequently that the use of a machine is not justified. Speed and deftness are required in this work. A Women's Bureau study of these industries in representative States and communities (1929 and 1930) showed that about 13 percent of the women in cigar factories and 42 percent of those in cigarette factories were in the packing departments.

In the clothing industry the amount of wrapping, packing, boxing, labeling, and so forth is likely to depend on the fineness and price of the article. Full-fashioned hosiery is carefully paired, banded, labeled, and boxed to make an attractive appearance on the department-store counter, while children's cheap socks may be merely bundled up wholesale to be spread out in the "5 and 10". Men's shirts may be sorted for size and sleeve length, and a certain number of each size put together according to the orders of the wholesaler or retailer. All this work is done by women, and is quickly learned, though it does require dexterity and care.

TOOL-CRIB AND STOREROOM WORK

Tools used in making the product, purchased parts from screws to castings, patterns, chemicals, many different items, must be kept so as to be quickly available. The attendant must know the stock and its arrangement, keep track of all that is given out, see that non-consumable items like tools are returned, and in general do a store-keeping business. This is an occupation relatively new for women in any considerable numbers in the present war. However, many women now are performing this work very successfully, provided the attendant need not handle large and heavy as well as small and light materials.

Storerooms and stockrooms had women employees in most of the aircraft plants visited by the Women's Bureau. Supplies such as sheet metal, extrusions, bars, clamps, nuts, bolts, rivets, and parts are kept in bins and on shelves and racks. Many of the parts to be stored and issued are small and can be handled easily by women. Much of the work is of a semiclerical nature, keeping stock records of the

receipt and disposal of parts, perpetual inventory reports, filing requisitions and orders.

Similar jobs were held by women in the toolrooms, where tools, templates, small jigs, and dies are stored, maintained in condition, and issued, and women could do this type of work to a greater extent. Only a small number of women were found in the toolrooms, but in all cases where there were women it was planned to augment their numbers. When women can increase their general mechanical background and knowledge of the names and uses of tools, more of them can be considered as tool-crib workers. One firm estimated that it could use almost 300 additional women tool-crib attendants and clerks if labor-supply conditions made it necessary.

In small-arms plants more women were employed as stockroom attendants than as tool-crib attendants. Twelve percent of the stockroom workers were women acting as stock-record clerks and storekeepers, filling cribs and boxes with parts and supplies, and putting up orders to be routed to the plant. Seven percent of the tool-crib attendants were women, who handled the smaller tools, jigs, and fixtures, checking them in and out and keeping records. This work requires a knowledge of the different articles, which women were acquiring gradually on the job. Women did similar work in cannon plants. In the tool cribs they did a certain amount of grinding of milling cutters and reamers.

Women were employed as tool-crib attendants in only 3 of the machine-tool firms surveyed. In 1 of these women were known as tool dispatchers, since they took tools to the machine operators so that the latter need not leave their machines.

In steel mills women were employed in both tool cribs and storerooms. In foundries they were reported as storeroom laborers, tool cleaners and grinders, and toolroom attendants. In the pattern-making shop they gave out and stored the smaller patterns.

Women have proved very satisfactory in toolrooms of shipyards. They have learned quickly and are orderly and efficient. In one yard the toolroom served a thousand people a day. The women waited on them and got them away from the window much faster than men did. Once a week files were gone through and misfiled slips pulled out. Formerly there would be a peach basket full of such slips; with women on this job there were only about 15 slips incorrectly filed. Girls spell and write better and are more accurate and serious about the work.

OTHER CHARACTERISTIC OCCUPATIONS

In a few occupations particularly characteristic of the metal and machinery industries—for example, in filing and burring and core making—women frequently are engaged. As with other occupations discussed, the size and weight of articles to be handled determine whether or not women can do these types of work satisfactorily.

Burring and Filing.

These operations sometimes are reported with other bench work. But "bench work" may be the operation of a small machine mounted on a bench, or assembly, or inspection, or the sorting of parts. In

general, bench work involves work on small articles and often may be done while seated.

A favorite introductory job for women in aircraft-assembly plants inspected by the Women's Bureau is burring and filing in the machine-shop and metal-fabrication departments. Rough edges, small projections, and irregularities are removed from machined parts, fittings, castings, and sheet-metal parts with emery cloths, burring tools, and files, the work sometimes being to close dimensions along prescribed lines. Larger burrs or surplus metal are machined off on lathes and stationary grinders and the insides of holes are cleaned with burring attachments on drill presses. Many women do bench burring and filing and as an entry job it affords them training and experience in the use of hand tools and clamps, scribing, and the handling of metals and sometimes of templates and machines.

The Women's Bureau survey in small-arms plants found more women doing this type of work than any other with the exception of machine operating and inspection. Machine operators quite frequently burr and file parts that they machine. But in addition there are many full-time filers, burrers, precision filers, and polishers. About 16 percent of the burrers, filers, and polishers in the plants with detailed information were women, and in one instance the proportion was 30 percent. Women generally worked on the smaller parts, using files, scrapers, portable burring machines, high-speed lathes, belt sanders, disk grinders, and emery cloth. In all the plants there still were a great number of men working on small parts, as filing of gun parts has been considered precision work requiring considerable skill. But women had demonstrated their ability to pick up the techniques involved and more and more were being placed on precision filing and work on heavier parts.

In cannon manufacture as well there is a great deal of filing, burring, and polishing of parts. While women worked chiefly on small parts some were on heavier articles. Most of this work was done at benches with the worker seated, but some on large pieces was done standing.

In one of the aircraft-engine plants visited about 75 percent of the burring in the machine shop and subassembly departments was done by women.

During the First World War, 11 of the 278 metal-working plants studied by the Women's Bureau had replaced men with women on filing. Of 10 firms reporting, 7 stated that women did as much or more work than men. However, only 3 had retained women in 1919.

Coremaking.

Coremaking is done entirely in foundries. The core, around which the molten metal flows at pouring time, forms the interior opening or hole in a hollow casting. The core is made separately from the mold that shapes the outside of the casting. Most cores are made of a special type of sand, sometimes reenforced by wire or rods, and baked. Each sand core is used only once and is broken up to free the casting.

Women were doing this work at least as early as 1907 and 1908. The description of women's work given at that time shows that the process has changed very little.

> The women, standing or sitting at long tables on which each had a space about 3 feet square, filled the core boxes with the sand mixture, tamped it down to the proper density, removed the core box, and carried the cores to the

> oven. They were never employed upon heavy or intricate work, this being done by men.
>
> In spite of this fact the work done by women is distinctly skilled. For a week or so after learners begin, at least 90 percent of their work is spoiled. Within two weeks, however, they can learn to make the simplest forms well, and within three or four months they can do ordinary work; but it takes at least a year for the average woman to learn to make well all the varieties of cores which may fall to her department. Removing the core boxes without breaking the angles or corners of the more intricate cores is an operation which requires both natural dexterity and experience. * * *
>
> * * * The making of each core is a bit of constructive work calling for much more than the mere repetition of mechanical movements. Usually a woman is called on to make several different kinds of cores during a day, which also tends to keep the work from becoming mechanical (25).

In 1917–18 some plants employed women as coremakers for the first time, while in others where they had worked on light and simple cores for 15 or more years they were employed on more intricate and heavier work. Two-thirds of the firms reporting retained women on this occupation after the war.

A series of biennial reports by the Bureau of Labor Statistics on wages and hours in foundries and machine shops from 1923 to 1931 showed that women ranged from 7 to 10 percent of all coremakers covered. However, since only about 1 plant in 10 had any women coremakers, their proportions where employed must have been considerably larger. One of the important considerations is the size and weight of the core and core box, determined by the size of the casting to be made (26).

Of 13 foundries visited by the Women's Bureau in 1943, at least 11 employed or had employed women on coremaking or other coreroom work. One plant used a process that did not require the conventional core. Where especially noted, women usually made small cores only. In one the small parts required very delicate work, such as women are best suited to do.

PART II. PROBABLE OPPORTUNITIES FOR THE EMPLOYMENT OF WOMEN

The first section of this report has discussed certain industrial processes that women's special aptitudes particularly fit them to perform in industry—namely, assembling, inspecting, wrapping and packing, and the operating of certain machines.

These operations have been examined primarily in relation to their performance by women in war manufacturing, as for example in metal-products and electrical industries, and in the manufacture of aircraft, ships, and munitions.

Some of these industries—munitions for example—no longer will feature largely in the country's economy after the war. Others probably are due for considerable cuts. The indications are that shipbuilding, an industry requiring many heavy and difficult operations, will employ only very minor proportions of the enormous groups of women it has engaged during the war, and the manufacture of aircraft may be considerably reduced from the peak of its output and employment.

But there are other industries that will enjoy an increased, or at least a very large, peacetime demand. Many of these have production processes similar to those discussed here, which were performed by women in large numbers before the war and to a very greatly increased extent during the war.

A wide variety of electrical appliances will continue to be in increasing demand, and many of the small metal products on which women have worked are necessary for daily use of the people. Interchangeable small parts as well as accessories will be needed, probably on an extensive scale, for postwar automobiles, and such aircraft as will continue in production. Evidence points toward the increased use of measuring instruments of various types on which women have been widely employed in the developing programs of industrial discovery, scientific advance, and improved household and transportation devices.

The outlets for the skills women have developed in assembling, inspecting, machine operating, electrical manufacture, will be in the industries of coming demand. This section of the report, therefore, will consider some of the evidences of such demand for certain products in the fields of electrical devices, small metal products, automobile and aircraft accessories, plastic parts, and so forth. Of course the need for women's work will continue to a large extent in other industries that long have employed them, as for example in the textile, clothing, and shoe industries.

Shifts From One Skill to Another.

Any discussion of future employment must take into consideration possible shifts from the use of one material to another or from the

use of one method to another. But when this occurs and demands for old skills decline, new skills, often of an allied type, are called for. This point might be illustrated by changes in ways of preserving food, brought on to a considerable extent by war conditions. With the shortage of metal there has been an increased use of glass containers in place of tin cans in commercial canning. The glass industry estimated a production of about 92 million gross of glass containers in 1943 compared with 76 million gross in 1939. Some of these, of course, represented the greatly accelerated use of containers at home to preserve victory garden products.

Even more significant for the postwar period may be the development of the quick-freezing processes, which had increased 35 percent in employment in the 2 years from 1937 to 1939. This growth may mean that the peacetime demand for tin cans will not return to its prewar level, and the wartime demands for glass containers also may decline. But with change of method, and decline of one type of need, new products are required along some other line, as food must be provided and cared for.

The changed method requires a different container, a cardboard carton instead of a tin or glass can. An extension of the freezing method and a newer development is the use of frozen-food lockers in homes. These have been in use on farms for some time, and just before the war in many city homes as well. Models of such freezers about the size of a gas stove have been shown lately, although manufacture will have to await the fortunes of war. These freezers usually would supplement rather than replace the regular home refrigerator and thus if their production means decline in the use of tin cans it offers good prospect of new jobs to workers in the electrical equipment field, as well as to those making the cabinet containers.

Another development in food preserving is dehydration, used largely as a means of saving shipping space. Unless the dried product can be made as palatable and attractive as either canned or frozen foods, this method may not present much competition after the war.

Change to New Products, and Continuance of Demand.

A critical factor in postwar employment is the time element. How long will accumulated demands provide jobs? How soon will these jobs be available? As to the first point, the pent-up demand for motor vehicles and accessories, for example, represents several years' work at the 1939 level. Demand for certain electrical equipment represents only about a year's work. For many items no long-time estimate can be made.

Surveys of consumer demands have on the whole been realistic, recording not all who wish for a certain article, but only those who feel that they will be able to finance the purchase. For many families jobs must come first before plans can be made for large-scale purchases. This emphasizes the importance of the second point. Reconversion must come promptly to build up more purchasing power for those who do not now see their way much beyond the present.

There are many young married couples who due to war conditions have not yet established a home as they would normally do on marriage. A special Census survey indicated that in March 1944 there were more than two and a half million women with husbands in the armed forces, nearly half of them under 25. The Census estimates that more than

a million and a half marriages took place in 1943. These families need homes and equipment for homes, but they must have jobs first of all.

Not only are there young couples starting out, but many families of all ages have low incomes. Census data for 1939, for families of 2 or more persons with no income but wage or salary and not living on farms, show that 31 percent (4.3 million families) had incomes of less than $1,000; and over two-fifths of these families had 4 or more members. These must feel more secure before they can plan for buying. Such a number of families with unfulfilled demands clearly argues that the development of a high level of employment and wages will further increase markets on all the home fronts. Jobs for all will mean jobs for women in the occupations they can do best. Building a million new homes means immediate work almost exclusively for men, but fitting and furnishing these homes mean many jobs for women.

THE ELECTRICAL INDUSTRY

In October 1939, there were about 100,000 women wage earners in the electrical-machinery-industry group, one-third of all its employees. By October 1943, Bureau of Labor Statistics estimates indicated 3½ times as many, some 350,000 women, or nearly half of the total wage earners. Many, perhaps, most, of the electrical items now being made for the Army or the Navy are quite similar to those that will be in demand for civilian use in the postwar period—radios, lamps, batteries, wire and cables, and so forth. The greatest reduction due to priorities probably has been in household equipment—electric ranges, vacuum cleaners, toasters, and various smaller electrical appliances in daily use. This fact indicates that there will be considerable demand for replacement of such articles now wearing out. Moreover, a great variety of new electrical products had been developed but not widely used before the war, and some of these will be much more generally employed after the war to advance health and convenience in homes, work places, and public centers.

Lamps and Tubes (27).

The making of light bulbs and of radio and other tubes involves many of the same basic processes, including assembly of very delicate parts and inspection and testing. In 1939, women composed more than three-fourths of all wage earners making electric lamps. A study by the Women's Bureau in 1929 showed that about 83 percent of the workers on radio tubes were women in contrast to 46 percent on receiving sets (28).

There is sure to be a postwar demand for replacement and improvement of existing light fixtures in many homes, besides the considerable home building expected after the war that will call for new lighting equipment. An expert in this field estimates that an average of 10 fixtures will be required for each new home, not counting several portable lamps. It has been suggested that workers who have become accustomed to good lighting in modern war plants will not be content in peacetime with ill-lighted homes.

Farms too, in recent years, have seen a considerable extension in use of electricity, greatly accelerated by the Rural Electrification Admin-

istration. In the report of that agency for 1941 it was stated that the proportion of farms with electricity had increased from 11 percent in 1934 to 35 percent in 1941. But even in 1940 more than 7 million homes still were lighted with kerosene or gasoline—the great majority of these in rural areas—and this indicates a wide field for growth in the use of electric lamps in farm homes (29).

The great need for improved street and highway lighting has been emphasized in the war period by the blackouts and dimouts with their accompanying increase in accidents and crime. Even in peacetime over 60 percent of all traffic accidents occur after dark, when only one-third of the traffic is moving. The city of Detroit, by installing modern street lighting on certain main thoroughfares, reduced dusk-to-dawn fatalities on those streets by more than 83 percent. The National Safety Council points out that "most urban streets have the same type of street lighting that existed many years ago. Such systems are wholly inadequate * * * from a safety standpoint" (30).

The war also has increased the attention paid to good lighting in industrial plants, now more generally recognized as essential for speed, accuracy, and safety in production. For example, a large machine plant recently listing the gains made with the installation of improved lighting, stated that there was a 25-percent reduction in scrapped pieces, a 5-percent increase in production per man-hour, and a 50-percent reduction in accidents.

The Illuminating Engineering Society lists primarily for industrial plants the following advantages of good lighting (31):

1. Greater accuracy of workmanship, resulting in an improved quality of product with less spoilage and rework.
2. Increased production and decreased costs.
3. Better utilization of floor space.
4. More easily maintained cleanliness and neatness in the plant.
5. Greater ease of seeing, especially among older, experienced employees, thus making them more efficient.
6. Less eyestrain among employees.
7. Improved morale among employees, resulting in decreased labor turn-over.
8. Fewer accidents.

It is probable that most of the larger plants on war production, especially those that have been newly built, are well lighted. But a new market among small manufacturers who during the war period have had too low a priority rating to buy new equipment probably will be opened in the future. Comparatively few of some 130 war plants studied by the Women's Bureau in one large industrial State in 1942 were reported as having inadequate lighting, but a prewar study of industries in another State showed lighting to be haphazard in many plants, in some instances both good and wretchedly bad in the same plant. Though undoubtedly there has been improvement, there are many cases where further advance is needed.

Other electrical equipment has important health uses and is likely to find an increased demand in the postwar market. Infra-red lamps producing heat, and ultra-violet or "sunlight" lamps, are accepted generally for therapeutic purposes. Their use expanded 10-fold in the decade before the war and there is every likelihood that when they again become available on a large scale their production and sale will increase enormously. Most ultra-violet lamps require a transformer and are of the floor type, but one had been developed that could be screwed into any 120-volt socket, making its use in homes of the utmost

convenience. It is not now available but will be again after the war. A sun lamp for use in industry is designed to expose large numbers of workers at once to the ultra-violet rays (32).

About 5 years ago a germicidal lamp was developed that uses ultra-violet rays. Such lamps have been installed in many hospitals, and their use is being extended to surgical and dental offices, schools, business offices, and factories. Many more establishments eventually will use such equipment to maintain public health and to free workers, patients, and children from colds and more serious diseases. It may in time find a wide-spread use in individual homes as well.

Such sterilizing lamps also have many other factory uses to protect customers as well as employees. For example, a soft-drink plant employs this equipment at every stage from preparation of the syrup to washing, filling, and capping its bottles. A plant selling safety shoes to workers sterilizes those that have been tried on. Ultra-violet lamps are used to destroy bacteria in the air as it is drawn into the air-condition ducts. Another use for ultra-violet rays is in their action on light-sensitive films and papers, as in photostat machines and in printing of movie films.

Infra-red lamps are being used extensively to produce heat for industrial purposes, and drying processes are considerably hastened as a result. A company that had to finish in a very short time 5½ million buckles for war products found the bottleneck was in drying the lacquer on the buckles. The process required an hour to dry a batch and necessitated that they be shaken in the trays every 15 minutes. A simple installation of eight 260-watt infra-red-ray lamps with suitable reflectors enabled 1,500 buckles to be dried satisfactorily in 2 minutes. No more space was needed. Electric heating is a great improvement on old methods of dehydrating food, since it makes it possible to remove more moisture and thus insure a product that stores well in the tropics.

There have been many shifts from filament to fluorescent lights, which produce a bright, glareless light admirably suited for precision work. Fluorescent lamps were introduced in 1938 and their use has grown very rapidly. Sales of the tubes increased from 7.1 million in 1940 to 24 million in 1941 and 33.6 million in 1942. A tiny fluorescent lamp no larger than a marble could, it is estimated, burn for 6 months with about one cent's worth of electricity. Such a lamp could be used where constant light is necessary, as to mark a stairstep, for example, or a keyhole. The fluorescent in the immediate future may provide less employment than the filament lamp, because the latter still will be necessary in large quantities for uses to which the new type is not well adapted. Fluorescent lamps, though considerably longer lived than the filament lamps and giving off a much smaller amount of heat, are more expensive, and as they perform best when not turned on and off frequently, thus far they are less well adapted for home use than the filament type (33).

Electron tubes, the making of which involves processes similar to those in making light bulbs, are essential to the radio. They also have a variety of other uses, some well established and sure to be in increasing demand, others newly developed and likely to grow into much wider use.

The first such tube was made in 1907, an evacuated glass bulb containing three simple elements, a cathode or metal filament, an anode

or plate, and a small metal screen or grid. This tube is essentially a valve, and can be incorporated in an electric circuit to control or change current in many ways. It can act as a switch or be used as a measuring device. A year ago there were 750 different types in use, all variations on the same principle. The following examples indicate the wide variety of uses to which these tubes are put.

A vacuum-tube oscillator connected to a quartz crystal is used to produce smoother food products by emulsification, as homogenized milk. This is done by supersonic or sound waves of such high frequency that they are inaudible to most human beings. They accelerate chemical reactions and transform crystal structures. They may be used to treat seeds to stimulate growth, and for various other purposes in food and chemical industries.

Through use of electronic tubes in spray painting of irregular objects, the objects and the particles of paint are charged in such a way that the paint is deposited uniformly on all surfaces, doing a better and a quicker job at a lower cost. This is done by producing the same type of electrostatic charges that make people jump when they touch metal after walking across a rug on a dry, cold day. A sharper, faster-cutting sandpaper is produced by this method, with every particle of the abrasive material alined with the sharpest points upward. Another application of electrostatic fields includes smoke precipitators for chimneys and air cleaners to remove dusts, pollen, or other foreign particles.

Many electronic tubes are used as the basis of a control device. The well-known "electric eye" that opens a door has other uses. It can measure the vitamin content in a liquid, turn on lights in school or factory when needed, or regulate the heat in industrial furnaces by reaction to the color of the flames. Such tubes are incorporated in the newer machine tools to hold the speed constant regardless of the load. These and a multitude of other things are done at high speed and with great efficiency.

Radio Sets.

An enormous postwar demand for radios is almost certain. Many existing sets have deteriorated, if not worn out completely, during the years in which consumers could not buy freely. A United States Chamber of Commere report in the fall of 1943 indicated that over 2½ million families hoped to buy radios immediately after the war.

Moreover, nearly 6 million housing units were without radios in 1940 (34). Nearly three-fourths of these were rural homes, many no doubt without electricity. This indicates a considerable new market for radios, whether battery-operated or obtained after electricity has been installed. In 1939 more than 1⅓ million battery sets were made. In that year also there was a great increase in demand for portable sets, which came about through development of small, light batteries; one portable introduced that year weighed less than four pounds. A combined battery and plug-in device made some of these sets more useful, and would appeal to farmers anticipating the extension of electric lines.

There undoubtedly will be demand for radios adapted to the reception of the newer frequency-modulation broadcasting, which is said virtually to eliminate static and is known to the trade as FM. In the fall of 1941 there were 120,000 FM sets in use, compared to 15,000

in January of that year. In February 1943 there were 47 stations built or building for such broadcasting (35). A wide market for this development will be in schools and colleges, where the use of radios is growing constantly. It was reported in March 1944 that more than 100 school systems, colleges, and universities had taken first steps toward obtaining their own FM broadcasting systems as a means of furthering education (36).

Considerable attention has been given of late to the use of radio communication as a safety feature on trains, connecting engine and caboose, one train with another, or trains with stations. Some experimental installations have already been made (37). The "walkie-talkie", a military development, probably will find many peacetime uses, especially by police and fire departments; also perhaps by plant executives, construction gangs, forest rangers, and ranchmen. A two-way radio system weighing little more than 5 pounds, stated to be as easily operated as a telephone, already has been advertised (38).

Other Electrical Appliances (39).

The Chamber of Commerce report referred to on page — indicated an immediate postwar demand for more than 1.5 million electric irons, 1.4 million vacuum cleaners, and not far from 1.1 million electric kitchen mixers. The number last named about equals that of vacuum cleaners and that of the group mixers, whippers, and juicers produced in 1939.

The extent to which household equipment is being reconditioned in the present emergency is illustrated by the experience of an electrical company in a middle-western city. In making a canvass of residential customers for one month, the company restored 137 electric appliances to use; took 89 to the dealer for repair; sent 50 to the factory for repair; recommended that 196 be sent to the dealer for restoration; and made 124 minor repairs in the home.

The demand undoubtedly will increase greatly for certain types of equipment that were introduced prior to the war but had not come into widespread use. For example, in 1937 there was developed a new window-mounted room cooler, which could be installed easily and quickly and was remarkably silent. These would be useful in homes, small offices, hospital rooms, and elsewhere, and could be moved from one room to another. In 1939 some 28,000 air-conditioning units were produced, described as portable and self-contained. There also was introduced in 1937 an electrically heated bed cover that consumed on an average about as much electric energy as a 100-watt household lamp.

Since women can be employed more easily on small articles than large, the statement that electric motors are getting smaller and more powerful is of interest. A 3-horsepower motor has been developed that weighs only 7 pounds. Formerly the standard 3-horsepower motor weighed 105 pounds. A recently developed 30-horsepower motor is 5 inches in diameter, 13 inches long, and weighs 57 pounds. The Census of Manufactures shows a great increase in the number of fractional-horsepower motors produced, about 11¼ million in 1939 compared with not quite 5 million in 1929.

There is a long list of miscellaneous electrical products, often small, often with a wide variety of uses, on which women well might

be employed, especially as assemblers and inspectors. Among them may be listed the following:

Batteries
Bells
Burglar alarms
Buzzers
Circuit breakers
Coffee makers
Curling irons
Fans
Fuses
Insulators
Lightning arresters
Meters
Microphones
Panel boards
Plugs
Relays
Sockets
Spark plugs
Switches
Switch boxes
Telephone and telegraph apparatus
Toasters
Transformers
Waffle irons

PROFESSIONAL AND SCIENTIFIC INSTRUMENTS

A great variety of articles for many different purposes are included in the general term "instruments." Among the most common and best known are thermometers and barometers, cameras, compasses, surgical implements, dental chairs, and sterilizers. Many new navigation instruments have come into use in airplanes and have been improved rapidly under pressure of war demand. All these items will continue to be in considerable demand in the postwar period. In the fall of 1943 women constituted 43 percent of all wage earners making professional and scientific instruments and fire-control equipment.

Gages, micrometers, and the like are a type of instrument used to insure greater precision in manufacture. The frequent inspection of parts at all stages of processing has become a commonplace in war industries. (See discussion of inspection.) Measuring instruments have been developed in great diversity, some designed for use by workers with little experience. For example, an electric check-gage indicates undersize by a red light and oversize by green, while an amber light shows the measurement to be within accepted limits. It is described as quickly and easily set for extremely accurate work. Women have done very valuable work in the use of many of these instruments for inspecting products, and in the careful inspection of the master gages themselves. With the growing emphasis on precision, which is especially necessary if parts are to be interchangeable, there is likely to be permanently a growing market for all types of measuring devices to be used in metal-products plants (40).

The use of instruments for automatic control has become an integral part of manufacturing, especially in continuous-process industries such as chemicals or paper making. Examples of the variables to be measured and held within certain limits are temperature, pressure, flow rate, amount, speed, electrical qualities, humidity, viscosity, color, and opacity. A familiar control instrument is the thermostat, which kept houses at a temperature of 65 degrees last winter.

In the textile industry, for example, one of the most important fields for electronic instruments is in the measurement and control of moisture. Satisfactory processing depends on the right amount of humidity in the air and this varies with the type of fiber being used. The principle of the phototube has been applied to the spectrophotometer, which can distinguish two million shades of color accurately and record them automatically on a graph. An electronic relay recently developed stops all motion in a machine the instant a thread breaks. Control of temperature in drying of fabrics is important,

since if it is too low time is lost, if too high the goods will be harsh and have lost its luster.

Some instruments have moved from the laboratory into the factory. Many types of civilian motor vehicles have received their test through a trial run, but military requirements are more exacting and there is no time for a run-in. Instead, tank transmissions, for example, are given a noise test, long a laboratory test but now standard in the factory through the use of recording instruments. Noise is an index of the fit and assembly of gears and bearings. Another important move from laboratory to factory is the use of an instrument for continuous control of arc welding. By checking current consumption an experienced man can detect anything wrong with the weld.

Many instruments, often very intricate ones, are in constant use in research laboratories. While this is a limited field, it may well be a growing one.

SMALL METAL PRODUCTS

There is a long list of small metal articles in daily use, the demand for which grows with the population. Included are many household utensils, tools, and all the miscellany that fills the shelves of the hardware store. Due to restrictions on use of metals, many of these are not being made in normal numbers. A recent survey by the War Production Board's Office of Civilian Requirements indicates a shortage of many of these everyday necessities. If not more than 30 percent of the demand could be met, the shortage was considered severe (41).

Kitchen Utensils.

A severe shortage is reported of a large variety of kitchen utensils that may be made of aluminum, of vitreous enameled ware, of tin, or of other stamped and pressed metal. In 1939 about a fourth of the wage earners in these industry groups combined were women.

Prewar studies in aluminum and enamel-ware plants showed large numbers of women at work there, and the replacements now needed are almost certain to employ at least as many women as formerly, probably many more. The Women's Bureau visited several plants and found that women constituted nearly 28 percent of all employed in 1935 in making aluminum ware. Women were assembling and riveting, operating punch, blanking, and forming presses, and large numbers were wrappers and packers. More than a third of all workers were women as were more than half the inspectors and sorters and the wrappers and packers, in a special study of the enameled-utensil industry made by the Bureau of Labor Statistics in 1940 (42). Women also outnumbered men as enamel beaders and dippers.

Among the items now greatly needed are tea kettles, flour sifters, dust pans, cans for gasoline or kerosene, garbage cans, and washboilers and tubs. There is also a shortage, less severe, of coffee pots, double boilers, frying pans, covered kettles, saucepans, strainers, lunch boxes, baking pans, and pails and buckets.

The demand for canned foods, put up usually in tin, grew enormously in the decade before the war. From 1930 to 1940 the total population increased by about 7 percent, but the total production of

canned fruits, vegetables, and fish increased by 37 percent, and of all types of tin cans, including those for beer and lubricating oil, by 65 percent. In 1939 women were 28 percent of all workers in the making of tin cans and so forth. The need of foods for the armed forces has greatly accelerated the growth of this industry. It is estimated that the 1944 vegetable pack, exclusive of soup and baked beans, will be about 40 percent above 1939, the fruit pack about 18 percent above; or combining the two, an increase of approximately 35 percent. The shortage of tin due to its requirement for making other war supplies has caused a switch to glass, at least for much civilian goods, but there are many uses for which glass is not suitable. Availability of more tin after the war may increase the making of such containers above the prewar level. On the other hand, the development of the quick-freezing process, with home equipment, may lessen the demand for tin cans. If it does, it will increase the market for other types of containers and will add to the employment in electrical equipment for the making of the home units.

Needles and Pins.

At present, demands are not filled for snap fasteners, metal hairpins, and straight and safety pins, since the making of these small necessities has been somewhat disrupted by priorities. Many new applications may well have been developed for slide fasteners during their extensive use in war equipment.

This industry, which includes slide and snap fasteners and hooks and eyes, though small, has grown quite steadily, especially with the introduction of substitutes for buttons and buttonholes. From 1929 to 1939, employment of wage earners rose by more than 65 percent to an average of 10,403, about half of them women. The relatively new slide fastener, not reported separately in 1929, accounted for nearly half the value of the industry 10 years later. Production of metal hairpins had more than doubled, with the bobby type of pin accounting for more than a third of the total in 1939. Production of hooks and eyes had nearly doubled and that of safety pins had increased by one-half.

Miscellaneous Hardware.

Included in this group are locks and hinges, and all the other small metal parts (aside from nails and bolts and screws) that are used in buildings, in furniture, in luggage and harness, in motor vehicles, and in planes and ships. In 1939 nearly a fourth of the wage earners in such plants were women, and about two-thirds of the value of the product was for building and motor-vehicle hardware. An expanding program of home building and resumption of passenger-automobile production will call for an immediate increase in such small items.

Other Small Metal Products.

A severe shortage has been reported in a long list of other household needs requiring metal—safety razors, flashlights, pliers and wrenches, metal pot scourers, alarm clocks, carpet sweepers, tire pumps, and window screening. Not more than 60 percent of the demand could be met for egg beaters, spatulas, stirring spoons, portable lamps, household thermometers, mouse traps, and insect sprayers. Most of

such manufacture involves the handling of small parts. Taken all together, women are employed extensively on these products, and many of them are articles for which continuing need may be expected. The numbers of workers are not reported separately for each industry, but women were 48 percent of the wage earners making clocks and watches and 26 percent of those making lighting fixtures (not including bulbs).

TRANSPORTATION EQUIPMENT—AUTOMOBILES AND AIRCRAFT

Before the war, over 31,000 women were in transportation-equipment factories. Most of them worked on smaller parts and accessories, chiefly for automobiles.

Automobiles.

A great number of parts and accessories go into the finished automobile. These include the chassis, wheels, springs, axles, and so on; small items such as gears, bearings, locks, and other hardware; accessories—the lighting system, instruments for the panel board, carburetors, spark plugs, and so forth. Many more women are employed in the making of these things than in the plants that finally assemble the motor vehicle. A study by the Bureau of Labor Statistics in 1940 showed that even at that time women comprised nearly a fifth of all employees in the parts division. Forty-two percent of them were assemblers, chiefly of small parts, 18 percent were machine-tool or punch-press operators, 17 percent were inspectors. The proportion women constituted of total employees was greatest in factories producing the following:

	Percent women
Instruments	44.0
Carburetors	34.0
Coil (wire) springs	32.4
Automobile-body hardware	34.4
Automobile electrical equipment	31.5
Automotive stampings	23.7
Bearings	21.0

Production of passenger automobiles for civilian use stopped February 10, 1942. Since then the deterioration of cars, and their actual dissolution, has been enormous and presages a very large market for cars and parts as soon as production for civilians can be resumed. The United States Chamber of Commerce in its third progress report of a survey of probable consumer purchases after the war found more than 17 million persons hoping to buy automobiles and appliances. Seventeen million automobiles would mean almost 5 years' work at the 1939 rate of production of all motor vehicles. It is evident that many must content themselves at first with parts and repairs to keep the present cars running, and many probably have this type of purchase in mind. This development would be especially favorable to women's employment.

From two to two and one-half million cars were scrapped entirely in the two years 1942–43. There remain an estimated 24½ million cars in use by private owners and about a million used cars are in dealers' hands or in storage. Five-sixths of the cars now in use are 3 years old or more, and over half will have seen more than 7 years

of service by the end of 1944. Moreover, it is estimated that one customer in every six in need of repair work that involves parts replacement is refused either permanently or temporarily because the required parts are not available. These data reinforce the prediction that enormous numbers of parts for replacement as well as for new cars will be needed as soon as available (43). Of course, in the estimates of need for these products consideration must be given to buying power and this again goes back to the points already discussed. A rapid conversion to peacetime production, and the building of high employment levels, will be needed to assure the availability of cars and the ready market for them, and hence employment in parts manufacture.

Aircraft (44).

It is evident that airplane construction after the war must be far below the total numbers of military craft now being turned out, many to replace those that have been destroyed. From Pearl Harbor to June 1944, 171,257 planes have been produced, and they are being turned out at the rate of over 9,000 a month, or 108,000 a year (45). The number of military planes existing at the end of the war, the number of these that will be needed in the postwar military set-up, and the way in which the others may be utilized, all are unknown factors that will affect the picture. Conflicting prophecies continually are being made. The basis of long-time experience existing in the automobile field does not apply in aircraft. However, it is safe to say that postwar uses are likely to include some military needs and considerable extensions over the prewar status in passenger travel, carrying of mail and express, and private ownership.

The work of women in certain occupations in aircraft plants has been described in the first section of this report. Their employment during the defense and war programs has grown very rapidly as one employer after another has found how well suited they are to certain types of work on fine plane parts. When the Women's Bureau first visited 7 major assembly plants, in early 1941, 3 had no women and in the others only a fraction of 1 percent of the employees were women. Less than a year later, when visits were made to 26 plants, women constituted about 4 percent of the factory force, with 3 plants still employing no women. The plant with the largest proportion had about 15 percent women among its factory workers.

A study of aircraft-parts plants made by the Bureau of Labor Statistics in late 1942 showed women to be not far from a fifth of all first-shift workers. Of these women about 19 percent were assemblers, 16 percent were inspectors and testers, and at least 12 percent were operators of machine tools and punch presses. About a year later, estimates by the same agency indicated that women were 32 percent of all workers in aircraft-engine plants and 38 percent of all in plants making airplanes and other parts.

The use of planes for carrying passengers, mail, and express undoubtedly will increase. If rates can be reduced, this service will be in great demand. At the beginning of the war the bulk of domestic airline business was being carried in 361 planes, and Pan American Airways had only 141 planes to cover the Atlantic, the Pacific, and South America. Domestic routes now operating cover a total of about

46,000 miles, transoceanic routes 85,000. In 1941, the last year for which totals could be published, American lines carried 4 million passengers, compared with half a million 10 years before. However, even now, plans for expansion are under way. By November 1943 the Civil Aeronautics Board had on file applications for new routes totaling 560,000 miles (46), some 27 times the distance from New York to Melbourne and return. Considerably more than half of this mileage is for transoceanic routes. There is also talk of a chain of 6,000 national airports, compared with 3,000 about a year ago. An important means of extending the usefulness of civil airlines is through development of feeder lines, with a pick-up type of service for mail and express, and for smaller places landing strips for passenger service instead of large expensive airports. There are some 8,000 cities and towns in the United States with populations of more than 1,000, a size that one company considers it feasible to furnish with air transportation.

The extent to which private flying will furnish a market is extremely problematical. In 1941, 24,000 private planes were registered, 17,000 in the $2,000 light plane class, carrying the pilot and one passenger. About 80 percent were strictly for private flying or instructional flying. The average period of ownership was less than 4 years. More than half of those who in the past bought planes or took training abandoned flying shortly, chiefly because of the high cost of the plane and its maintenance, inaccessibility of airports, and limited usefulness of the plane due to weather conditions. Total annual cost of operation has amounted to from 40 to 60 percent of the price of the plane. A large proportion of the cost, including such items as insurance and hangar rent, had no connection with the extent of use. New developments are very likely to solve these difficulties, some of them similar to those encountered in early stages of the use of automobiles, which later went into mass production on so vast a scale. Hence plans are being made for manufacture of private aircraft. One firm contemplates producing 5,000 2-place planes a year, to cost $1,000 each. Another plans 5,000 4-place planes at between $2,500 and $3,500. A third is considering the making of 5,000 2- and 4-place planes at $1,200 and $3,000.

A specialist in the field of rotary-wing aircraft feels that great harm has been done to future prospects of the helicopter by too much and too extravagant publicity. He states that it has far to go before it reaches anything like perfection. This type of plane could have a greatly extended use in the Coast Guard Service for shore patrol, in agriculture for spraying purposes and for spotting insect infestation, and in the Forestry Service for detecting fires and placing personnel and equipment for fire fighting. Helicopters for the use of the Army were being produced on a new assembly line in the East in the summer of 1944, and experimental models of two improved models had been built. They already have been in service to evacuate wounded men from points inaccessible by other means of transportation. Another 2-place military model is to be produced in quantity in Michigan. A corporation was formed in June 1944 to manufacture a new type of helicopter to carry two passengers and baggage at a cruising speed of 100 miles an hour; 10-passenger and 20-passenger models also have been produced.

FABRICATED PLASTIC PRODUCTS

Plastics are being substituted for metal in many cases. They are used most extensively as small parts of larger units. Their insulating qualities make certain of these materials especially useful in electrical equipment for aircraft, ships, and motor vehicles. The Signal Corps depends on them for antennae, hand generators, dynamotors, batteries, microphones, head sets, telephone units, and many other items. Many articles for use by soldiers and sailors are made wholly or partly of plastics—bugles, whistles, buttons, bayonet scabbards, canteens, razors, shaving brushes, toothbrushes, and other toilet articles. Other useful applications have been in first-aid kits, goggles, and flashlights. All told, the war has greatly increased their use, since often they have been introduced to save critical metals and have been proved by exacting tests to be equal to, and in some cases superior to, the metal replaced (47).

Some of the occupations found to be so well suited to women are required on plastics as on metals—machine operation, assembly, and inspection—and it well may be that a relatively new industry such as this, which has extended its field of usefulness so rapidly, will be more open-minded toward employment of women than are the older metal trades. In 1939 more than a fourth of the wage earners making fabricated plastic products were women.

A survey of women's work in the industry was made by the magazine *Modern Plastics* and reported in the issue of January 1943. Women were found performing successfully many processes, described as follows:

Finishing—Women run drill presses, grinders, lathes, sanders, tapping machines, automatic machines, multiple-spindle drill presses, buffers, paint sprays, hand tools, files, chisels, scrapers, reamers, flexible-shaft machinery.

Inspection—Women operate thread gages, plug gages, ring gages, snap gages, multiple gages, dial gages.

Toolroom—Women run polishing machines, shapers, lathes, grinders, drill presses, and do hand operations on the molds.

Press room—Women run light hand-molding presses; single-ram presses from 3- to 15-inch; double-ram presses from 6- to 8-inch; assemble and disassemble wedges; do preinspection and floor inspection; hi-spot testing.

Drafting room—Women do ordinary drafting-room work.

Laboratory—Women chemists do the same sort of work that men do.

Designing—Women artists do plastics designing.

One plastics mold maker has been extremely successful in using women in the toolroom. These women work on all types of mold operations, including cutting, grinding, polishing, and all the various steps of tooling molds. The company has an extensive training program for women, especially designed to fit toolroom work as distinguished from a general training program applicable to the entire industry.

Plastics include a great variety of substances made according to various chemical formulas. A review of the industry early in 1942 indicated that since 1918 over 105 trade-named products and possibly 60 different types of compounds had been developed. Each type has many grades and degrees of hardness. If color and transparency also are considered there is an almost unlimited list of materials from which to select. No doubt more types have been developed since that review. Whenever these materials are to be used for a new purpose,

extensive tests are made to select the one most suitable. Often a new compound is worked out in the laboratory to meet the situation.

These materials, like the different types of synthetic rubber (classed by the Census in the plastics-industry group), have both their virtues and their defects. The materials must be applied so as to make best use of the virtues, which include light weight, color, durability especially as compared with glass or porcelain ware, high insulating qualities, and in some types transparency. When a plastic replaces metal the process necessarily is changed and often simplified. For example, a gun-barrel sighter made of five pieces of brass and involving two soldering operations was first exactly copied in plastics, but later it was redesigned to be made in two pieces, greatly speeding production and saving materials.

Out of all these war uses much knowledge will have been secured as to the most practical application of the various materials. Where plastics have proved superior to metals or with equal performance have proved less expensive, their use will be continued and expanded.

The many peacetime uses of plastics that had begun to develop before the war undoubtedly will be increased and a great variety of new uses added. Plastic articles that already have been well received include many small items for use around the house, dishes for informal occasions, funnels, sink strainers, measuring spoons, apple corers, cheese graters, shoe and hat trees, and a long list of personal items, such as costume jewelry, cosmetic containers, cigarette cases, and the like. Plastics make excellent toys and are almost perfect for infants' toys. Well over a fifth of the buttons produced in 1939 were of plastics. Other plastic articles separately listed as manufactured in 1939 were electrical goods; housings (for cameras, scales, radios, and so forth); and closures for bottles, cans, and the like.

The use of plastic-blended plywoods in boats and small aircraft is well known. Many of the processes involved in the fabrication of plywood articles are the same as those in ordinary wood. The application of plastics as a waterproofing material takes it into the textile field. The making of articles by molding or casting is perhaps most closely akin to the metal trades.

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(6) Some of the examples cited and other data are from Women's Bureau reports on war plants. See especially: on Aircraft, Buls. 189–6 and 192–1; on Ammunition of various types, 189–2 and 3, and 192–2; on Instruments, 189–4; on Cannon and small arms, 192–3; on Machine tools, 192–4.
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(18) Monthly Labor Review (see 9), Feb. 1942, p. 300; Mar. 1942, p. 748; Apr. 1943, p. 764.
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(33) See Factory Management and Maintenance, Feb. 1943, p. 128; Fortune, June 1943; and Manufacturers' Record, Nov. 1943, p. 42 ff.
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(39) See Domestic Commerce, June 1944: Scientific American (see in 27), Jan. and Mar. 1937 and June 1944; Modern Industry, Mar. 15, 1944; and Electrical West, Apr. 1944.
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(41) Victory Bulletin. American Council on Public Affairs. July 6, 1944, p. 10.
(42) Monthly Labor Review (see 9), Mar. 1941, p. 694.
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UNITED STATES DEPARTMENT OF LABOR
FRANCES PERKINS, Secretary
WOMEN'S BUREAU
MARY ANDERSON, Director

✦

Changes in Women's Employment During the War

By
MARY ELIZABETH PIDGEON

★

SPECIAL BULLETIN NO. 20 OF THE WOMEN'S BUREAU
JUNE 1944

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1944

For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.
Price 10 cents

Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
WOMEN'S BUREAU,
Washington, June 14, 1944.

MADAM: I have the honor to present a report the findings of which will be of importance in the development of sound postwar employment policies. Its analysis answers a variety of insistent questions as to the war movements in women's entrance to and exit from the labor force, according to their age and marital status and the changes in their occupational groupings in this period.

Basic data for this report were specially collected by the Bureau of the Census, at the request of the Women's Bureau, in the course of the regular monthly labor-force census. They were tabulated by that office under the direction of Dr. A. Ross Eckler, chief of the Special Surveys Division, assisted by Miss Gertrude Bancroft. Questions to be asked and specifications as to these tables were prepared by Janet M. Hooks Bassie of the Women's Bureau Research Division, and analysis of the findings was made by Mary Elizabeth Pidgeon, chief of the Research Division, assisted by Elisabeth D. Benham.

Respectfully submitted.

MARY ANDERSON, *Director.*

Hon. FRANCES PERKINS,
Secretary of Labor.

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EMPLOYMENT OF WOMEN IN THE WAR PERIOD

SIGNIFICANT FACTS

Employed in December 1941, as reported March 1944—12,090,000.

Employed March 1944—16,480,000. (Increase, 36 percent.)

61 percent were in labor force before Pearl Harbor.
50 percent in *same occupation group* as formerly.

In labor force in both periods—10,230,000.

69 percent were 20–44 years old.
42 percent single; 30 percent married, husband present.

Women who left labor force—2,180,000.

21 percent were 45 years old or more.
62 percent were married, husband present.
93 percent went to home housework.

New entrants to labor force—6,650,000.

55 percent were 20–44 years old.
44 percent single; 36 percent married, husband present.
56 percent were home houseworkers; 34 percent in school.

Women not entering labor force—33,260,000.

43 percent were 45 or over, 14 percent under 20.
65 percent were married, husband present.

	Percent change 1940–44	*Proportion employed 1940*	*1944*
Woman population, 14 and over	+4	22.0	31.5
Single women	−6	38.3	53.6
Married women	+8	13.9	22.5

Great employment shifts occurred between occupations.

Manufacturing and clerical occupations gained most.

The manufacturing industries differed greatly.

In war industries, 49 percent came from outside the labor force, 26 percent from other industries. In essential supply industries only 37 percent came from outside the labor force, 54 percent were in same industry as before the war.

NOTE.—As reported for December 1941 and March 1944 by women interviewed in March 1944. Does not take account of all changes occurring *between* the two dates.

Changes in Women's Employment During the War

One of the most spectacular of the changes that have characterized the period since the Pearl Harbor attack is the tremendous shift in the work of women to meet this country's needs for industrial products. This has occurred in many cases through women's own volition, but in large measure it has been in response to urgent calls for their services.

After two years of great and rapid transition in women's employment and occupations, the need has been felt increasingly for further data on the over-all extent and character of the movement. Aside from their widespread interest, such data are of the utmost importance in shaping both immediate and future administrative policies.

In the first place, the effectiveness of continuing plans to carry forward this country's program for production and services depends to a considerable extent on the response women are making to the great efforts to call them to work outside their homes. Further, wise provision for the necessary adjustments after the war requires a background understanding of employment needs and possibilities, on which much light can be thrown by a fuller knowledge of the experiences during the war.

SOURCE OF NEW DATA ON EMPLOYMENT OF WOMEN

The Bureau of the Census publishes monthly estimates, for men and women separately, of total civilian employment. These are based on interviews with households in a national sample which has been in operation since the spring of 1940. The present sample includes some 30,000 households located in 123 counties selected in such a manner as to provide national estimates of the major labor-force characteristics of the population.[1]

In connection with this reporting, special additional questions sometimes are asked for a particular month. In the spring of 1944, the Bureau of the Census responded to a request by the Women's Bureau of the U. S. Department of Labor for the inclusion of questions to afford data on the shifts in the employment and occupations of women between the week immediately preceding the Pearl Harbor attack and a week in early March 1944. Throughout this discussion, comparisons of earlier and later data refer to the week of December 1–6, 1941, and the week of March 5–11, 1944, the interim thus being about 2¼ years.[2]

[1] For further information as to sample, consult the Bureau of the Census.

[2] In one or two instances comparisons are made with data from the decennial census of 1940, because data for December 1941 are not available for certain particular comparisons. This will be explained where discussed. (See footnote 11, p. 9.) The use of 1940 for the present questions, instead of December 1941, was considered, but it was felt that the later date would afford more accurate replies, since persons interviewed can remember more vividly the Pearl Harbor date and the time just preceding than a time approximately 4 years before the date of interview.

The questions added to the usual monthly schedules were as follows:

(1) For all persons 14 years and over, enter activity during week before Pearl Harbor, December 1–6, 1941.

(2) If at work or had a job during the week before Pearl Harbor, enter occupation and industry of that job.

The data resulting from these questions are of even greater value because correlations with age and marital status could be made in addition to those on employment and occupation. Marital status could be included because a special question on that subject had been asked in the preceding month. Age was obtainable because such a question is a part of the regular schedule, this information being of vital importance, for example, to the draft boards. Caution is necessary in regard to the use of material developed from a sample of this type, especially since in this case its content is of such wide national interest. The data give a revealing picture of various relationships—for example, as to the types of shifts occurring in and out of the labor force or between various industries or occupations, or as to the age or marital status of women in and not in the labor force. However, since they are estimates from a sample they do not completely measure the exact sizes of particular groups, especially of the smaller groups.[3]

WOMEN AS A PERMANENT PART OF THE LABOR FORCE

Many people have not realized the very large extent to which women are a permanent part of the labor force. The dominance of the war situation, with its urgent call to women to take employment and its large increases in the numbers of them who have gone to work, has tended to obscure the fact that women long have been a very substantial and increasing part of the country's labor force. In the 50 years prior to 1940, the proportion of workers who were women increased from 17 percent in 1890 to 24 percent in 1940, as the following shows.

	Percent women were of all workers
1890	17.2
1900	18.3
1910	21.2
1920	20.5
1930	22.0
1940	24.3
1944 (March)	32.9

WAR INCREASES IN WOMAN EMPLOYMENT

In spite of the fact that in 1940 women already constituted over 24 percent of the labor force, the number of women who have sought to meet the new war needs is almost breath-taking in its magnitude. The number of employed women reported increased by 36.4 percent in a period of a little more than 2 years—from the week preceding the Pearl Harbor attack to the week of March 5 to 11, 1944, when the new figures were taken. These data are as follows:

	Number of women employed
December 1–6, 1941	[4] 12,090,000
March 5–11, 1944	16,480,000

[3] See note 1 on p. 1.

[4] These are women who in March 1944 said they also were employed in December 1941.

Actually, the number of women going to work within this period has been far greater than these over-all figures would indicate, for of those at work before Pearl Harbor many had left employment by March 1944 and been replaced by new workers. For this reason, the entire number of new women entrants, not employed in early December 1941, totaled 6,650,000.[5]

Chief Sources of New Woman Labor Supply.

Where did this startling number of additional women workers come from? More than half of the new entrants had come to work from their homes, and about a third of them had been in school. The following summary indicates these and the minor sources of the new women workers:

Source of new women workers	*Number (in thousands)*	*Percent*
Total	6,650	100.0
Home housework	3,710	55.8
School	2,280	34.3
Under 14	240	3.5
Other	80	1.2
Labor-force status not ascertainable	340	5.1

The response these new women workers have made to the needs of their country, their communities, and in many cases their own families indicates that when vital need arises women are available to meet it. When women are as ready as this, under voluntary systems, to take their part, compulsory methods appear entirely unnecessary, unless this country as a whole should face far more extreme situations than seem likely to arise. Furthermore, the willingness of a great body of women to come forward when the situation demands it places a corresponding responsibility squarely on the shoulders of industry and public authorities to include in their planning full consideration of the extent to which women are a large and normally increasing part of the labor force.

Women Who Left the Labor Force.

Though more than 80 percent of the women who reported that they had been employed before Pearl Harbor were still working in March 1944, over 2 million women—18.6 percent of those who were at work in December of 1941—left the labor force between the two dates under comparison. A consideration of where these women went may be of constructive interest to those who are planning for adjustments of workers after the war.

Of the women who left, more than 90 percent went to home housework, some were unable to work, and a very much smaller number went to school. Their numbers and distribution were as follows:

March 1944 status of women who left labor force	*Women who left labor force* *Number (in thousands)*	*Percent*
Total	2,180	100.0
In home housework	2,020	92.7
Other	160	7.3

[5] This takes no account of the multitude of shifts between occupations, nor of other changes in the interim period. For discussion of the former, see section on War Shifts in Women's Occupations, p. 10.

Distribution of Woman Population as to Employment or Activity.

Of the entire female population of 14 years and over in March 1944, practically 20 percent were in the labor force both before Pearl Harbor and in March 1944, and in addition about 13 percent entered in the period between these two dates. A small proportion were women formerly in the labor force who had left it by March 1944. More than 60 percent of the women in the United States were not in the labor force either before Pearl Harbor or in March 1944. Over three-fourths of these—more than 25½ million women—were home houseworkers in both periods, small proportions were in school or unable to work at both times, and nearly 2½ million were under 14 before Pearl Harbor. This leaves almost 2 million women, besides a proportion of the home houseworkers, who still might be available if further additions to the country's labor forces are needed.

The women who have not gone to work undoubtedly are those whose economic situation neither requires nor tempts them to do so. There also are a number of localities where war industries have not developed, and women who for family reasons are unable to migrate have no increased opportunity for employment. Since Government contracts are now being curtailed, and in various parts of the country women who do need their earnings are being laid off, there appears to be little evidence that employment needs cannot be solved by a proper use of the existing labor force without calling on this reserve group of women.

The basic figures for the foregoing discussion [6] of the present situation are as follows:

Activity status	*Distribution of woman population*	
	Number (in thousands)	*Percent*
Woman population 14 and over, March 1944	52,320	100.0
In labor force March 1944	16,880	
In labor force both before Pearl Harbor and in March 1944	10,230	19.6
Entered labor force between December 1941 and March 1944	6,650	12.7
Not in labor force March 1944	35,440	
Not in labor force at either date [1]	33,260	63.6
Both dates:		
Home housework	25,550	
In school	1,580	
Unable to work	1,790	
Under 14 before Pearl Harbor	2,440	
Other [1]	1,900	
Left labor force between December 1941 and March 1944	2,180	4.2

[1] Includes 570,000 with status not reported for December 1941.

[6] See footnote on p. 3.

WAR SHIFTS IN WOMEN'S EMPLOYMENT IN MAJOR OCCUPATION GROUPS

The great net increases in woman employment do not show the shifts in and out of the labor force, nor the very considerable shifts between major groups of occupations. The March 1944 woman labor force is made up as follows:

[*In thousands*]

Women employed March 1944	16,480
In same occupation as formerly	8,370
Not in same occupation as formerly	8,110
Changed occupation	1,460
Were unemployed formerly [1]	230
Entered labor force	6,420

[1] Includes those on emergency work.

Women Remaining in the Same Occupation Group as Before Pearl Harbor.

Of 9,830,000 women who were employed both before Pearl Harbor and in March 1944, 85 percent (8,370,000 women)[7] had remained in the same occupation groups in which they formerly worked. In every occupation group, more than three-fourths of the March 1944 women employees who were in the labor force before Pearl Harbor had remained in the same group as before. The summary next presented shows how the occupation groups differed in extent of retaining their women workers.

Perhaps it is of even greater significance that half of the total number of the women in the *entire March 1944 woman labor force* were in the same occupation group as before Pearl Harbor. This was true of more than 70 percent of the professional and semiprofessional and proprietary workers, more than 60 percent of those in domestic service and farm occupations. However, only a little over 40 percent of the sales, manufacturing,[8] and service workers other than domestic were in the same occupation as formerly, as were only about 50 percent of the clerical employees.

Occupation group	All women employed March 1944 (in thousands)	Women who in March 1944 said they were in same occupation group as before Pearl Harbor		
		Number (in thousands)	Percent of—	
			All women employed before Pearl Harbor and in this occupation in March 1944	All women in the group in March 1944
All occupations	16,480	8,370	85.2	50.8
Professional and semiprofessional	1,490	1,080	96.0	72.8
Proprietors, managers, and officials	650	460	86.6	71.1
Clerical and kindred	4,380	2,210	86.5	50.5
Sales	1,240	510	86.5	41.2
Craftsmen, foremen, operatives, and laborers except farm	4,920	2,060	78.2	41.9
Domestic service	1,570	1,000	90.9	63.9
Other services	1,650	700	76.4	42.5
Farm workers	560	340	93.8	60.8
Not classifiable	20	(1)		

[1] Less than 1,000.

[7] See table below, this page.

[8] This is the group craftsmen, foremen, operatives, and laborers except farm. It will be referred to in discussion as "manufacturing," though a small proportion of these workers are in other types of industry.

Labor-Force Status Before Pearl Harbor of Women Employed March 1944, by Occupation Group.

The occupations of women in March 1944 differed considerably in the proportion of their women workers who had been in the labor force (though not necessarily in the same occupation group) in the week before Pearl Harbor. For example, as the following summary shows, more than 70 percent of the women who in March 1944 were in the proprietary, professional, and domestic-service groups were in the labor force before Pearl Harbor. On the other hand, more than 50 percent of the women who were in sales, as well as more than 40 percent of those in the groups that had increased most largely, manufacturing and clerical work, were not in the labor force in December 1941, but entered employment directly from activities outside the labor force that engaged them before Pearl Harbor.

Occupation group	*Percent[1] of women employed in March 1944 who before Pearl Harbor were—*	
	In labor force	*Not in labor force*
All occupations	61. 0	39. 0
Proprietors, managers, and officials	82. 4	17. 6
Professional and semiprofessional	76. 3	23. 7
Domestic service	71. 0	29. 0
Farm workers	65. 0	35. 0
Clerical and kindred	59. 5	40. 5
Services other than domestic	57. 5	42. 5
Craftsmen, foremen, operatives, and laborers except farm	55. 9	44. 1
Sales	48. 0	52. 0

[1] For numbers, see table 4 in the appendix.

Women Who Entered the Various Occupational Groups After Pearl Harbor.

Though one occupation group had sustained a net loss,[9] in March 1944 every group had some women who were not so employed in December 1941. Of the total 8,110,000 women who came either from other occupations or from entirely outside the labor force, the largest proportion came from home housework, with the exception of clerical workers, to whom the schools furnished the largest group. The groups second in size that entered semiprofessional, sales, and farm occupations were from the schools, and to proprietary or managerial work more women transferred from other occupations than entered from any source except home housework. Manufacturing and service industries each acquired similar proportions of women workers from schools and from other occupations in the labor force. The following summary shows these data:

[9] 1944 compared to 1940. See p. 9, summary and footnote 11.

Occupation group	Women entering group since Pearl Harbor (in thousands)	Percent of entrants to group who came from—			
		Other occupations	Home housework	School	Other activities
All occupations	8,110	18.0	44.4	27.0	10.6
Professional and semiprofessional	400	11.1	44.6	34.9	9.4
Proprietors, managers, and officials	190	38.0	52.9	4.8	4.2
Clerical and kindred	2,170	15.9	30.7	44.8	8.7
Sales	730	11.0	50.1	28.8	[1] 10.1
Craftsmen, foremen, operatives and laborers except farm	2,860	20.1	50.9	19.1	[2] 10.0
Domestic service	570	17.6	46.8	15.7	[1] 19.9
Other services	950	22.9	45.0	19.1	[2] 12.9
Farm workers	220	10.3	58.1	18.9	[1] 12.8
Not classifiable	20	23.2	48.6	18.3	9.9

[1] Major group formerly under 14 years of age.
[2] 3 or 4 percent formerly unemployed.

Occupation Group in March 1944 of Women Not in the Labor Force Before Pearl Harbor.

More than half of the 6,420,000 women employed in 1944 who had entered the labor force since December 1941 were from home housework and about a third were from the schools. As has been mentioned, the major groups of new women workers went into manufacturing and clerical work, with the service and the sales groups next though acquiring considerably smaller numbers.

There were differences in the types of occupation that engaged women who had been home houseworkers, in school, under 14, or unemployed. Of the home houseworkers, 40 percent went into manufacturing, slightly less than half as many into the clerical and into the combined service groups, 10 percent into sales occupations. Of the school girls, nearly 45 percent became clerical workers, a fourth went into manufacturing jobs, and very roughly a tenth each into the sales and the combined service groups. A small but perhaps significant proportion went from school into semiprofessional types of work.

Of the girls who were under 14 before Pearl Harbor, 85 percent still were in school in March 1944. Of those who went to work after Pearl Harbor, only a very small proportion were unemployed in March 1944. The remainder naturally were young workers, for the most part with very little experience. Consequently, until they can acquire further training, their opportunity for employment is found chiefly in those occupations that do not demand much experience. Nearly half of them had taken work in domestic or other service occupations, about a fifth sales jobs, and very roughly a tenth each were in manufacturing, in clerical occupations, and on the farm.

Though the proportions of women unemployed just before Pearl Harbor were relatively small, considerable numbers of them had found jobs in one or another occupation by March 1944. It is not surprising that the largest groups of these had been taken on in the manufacturing and clerical lines of work, in which total increases were so great, and by service industries (especially other than domestic) which needed replacements badly since they were losing to the manufacturing and clerical groups. Very few went to professional or semiprofessional occupations, fewer yet to sales, fewest of all to proprietary and farm jobs.

The summary following shows the 1944 occupational distribution of these major groups of workers who entered the labor force after Pearl Harbor.

Occupation group	Percent distribution by occupation group of employed women who in March 1944 said that before Pearl Harbor they were—		
	Outside the labor force (total)	In home housework	In school
Total (in thousands)	[1] 6,420	3,600	2,190
	100.0	100.0	100.0
Professional and semiprofessional	5.5	5.0	6.4
Proprietors, managers, and officials	1.8	2.8	.4
Clerical and kindred	27.6	18.5	44.3
Sales	10.0	10.1	9.5
Craftsmen, foremen, operatives, and laborers except farm	33.8	40.5	24.9
Domestic service	7.1	7.4	4.0
Other services	10.9	11.9	8.3
Farm workers	3.1	3.5	1.9
Not classifiable	.3	.3	.2

[1] For numbers see table 4 in appendix.

Former Occupation Group of Women Who Shifted to New Occupations.

Of the women employed both before Pearl Harbor and in March 1944, there were 1,460,000 who changed their occupation group. The factors normally of greatest influence with women in making such shifts are the strength of demand in an occupation and the extent to which the worker can better her situation by the change. During the war period patriotic motives are added to these. Thus the movements tend to be toward those occupation groups that are seeking workers most urgently, notably the manufacturing, clerical, and to a less extent the service occupations other than domestic.

The movements also tend to be, naturally, toward the occupations considered more desirable than the ones engaged in, because of better conditions of work, higher pay, wider opportunity, or other inducement. Thus women formerly in domestic service have gone to other services and to manufacturing; those in other services have gone to the manufacturing and sales groups; those from manufacturing and sales, to clerical jobs; those from clerical, to manufacturing, managerial, and professional and semiprofessional work. Shifts in both directions have been considerable as between sales and manufacturing, between sales and clerical, and between domestic service and farm work.

New Employment of Women Who Changed Occupations.

Many of the 1,460,000 women who changed their employment after Pearl Harbor went into strikingly different lines of work. Over half those leaving service occupations and clerical work and some 40 percent leaving the professional group went to manufacturing. Practically half or more of those leaving sales, manufacturing, and the proprietary group went into clerical occupations. Of those leaving the farm, 60 percent went to domestic service.

Net Gain or Loss in Each Occupation Group Since 1940.

As might be expected, the greatest net increases in employment from the time of the 1940 Census to March 1944 have been in the manufacturing [10] and the clerical groups, which have added more than 2½ and 2 million women, respectively, some of them formerly in other occupations or unemployed and others not previously in the labor force. The sales group and services other than domestic have added roughly 400,000 each; the proprietary group, over 200,000; the farm occupations, a very much smaller number. It must be remembered that neither of the periods under discussion reflected the great seasonal employment on the farms that occurred in summer. The gain in the professional and semiprofessional group is trifling, and there has been an actual loss of just over 400,000 in domestic service.

The result of these changes is that the manufacturing and clerical occupations now engage a much larger proportion of all employed women than was the case in 1940.[11] The two occupation groups that ordinarily may be considered at opposite ends of the scale so far as training requirements are concerned, domestic service and professional employments, have in 1944 smaller proportions of all women workers than formerly. The remaining occupations—services other than domestic, sales, farm, and proprietary groups—have much the same proportions of the employed women as in 1940.

The following summary shows these data:

Occupation group	Number of employed women in March 1944 (in thousands)	Net changes since 1940 [1]		Percent distribution in—	
		Number (in thousands)	Percent	1940	March 1944
All occupations [2]	16,480	+5,340	+48.0	100.0	[2] 100.0
Professional and semiprofessional	1,490	+20	+1.2	13.2	9.0
Proprietors, managers, and officials	650	+230	+53.3	3.8	3.9
Clerical and kindred	4,380	+2,010	+84.5	21.3	26.6
Sales	1,240	+460	+58.4	7.0	7.5
Craftsmen, foremen, operatives, and laborers except farm	4,920	+2,670	+118.7	20.2	29.9
Domestic service	1,570	−400	−20.4	17.7	9.5
Other services	1,650	+390	+30.9	11.3	10.0
Farm workers	560	+90	+18.6	4.2	3.4

[1] Figures used for 1940 comprise the employed and also those seeking work who were experienced in the occupation. See note 11, this page, for reason for comparison with 1940 occupation data. The 1940 figures include the experienced unemployed, since they were a part of the labor force needing jobs, though their occupational allocation refers only to the occupation last engaged in and not their usual or normal occupation.
[2] Total exceeds details, since those in occupations not classifiable are not shown separately.

Over-all Employment and Occupation Shifts of Women.

In addition to the women newly entering the labor force, the previously unemployed who now have jobs, and those who changed from one occupation group to another, a statement of occupation shifts must note the 2,250,000 women estimated to have left the labor force in the period between 1940 and March 1944.[12] The combined shifts in

[10] See footnote 8, p. 5.
[11] The 1940 data are used for this one comparison for the following reasons: The available tabulations show March 1944 occupations of women according to employment or activity status before Pearl Harbor. A complete occupational count of those employed just before Pearl Harbor cannot be had, since the occupation distribution of those in the labor force before Pearl Harbor but having since left the labor force is not available. The nearest approach to occupational data for this latter group is in assuming that their occupational distribution was approximately the same as that of all women in the 1940 labor force, which has been done for the discussion on pp. 8–9 and in table 6.
[12] This does not take account of individuals making several shifts within the period.

employment and occupations had affected more than 10⅓ million women, not very far short of the whole number of women employed in 1940.

Adding to this the women who remained in the same occupation group as before gives a grand total of employment and shift data for 18¾ million women. This number, roughly 37 percent of the country's whole woman population,[13] has been involved in productive and service processes in the short period of about 2¼ years from the week before Pearl Harbor to March 1944. The summary following shows the figures contributing to this over-all picture of employment and shifts.

		[*In thousands*]
Total reported (remained in employment and shifted employment, combined)		[1] 18,730
Remained in same occupation		8,370
Shifted occupation or changed employment status		10,360
In labor force in 1944	8,110	
Not before in labor force	6,420	
Formerly unemployed (out of a job)	230	
Shifted from one occupation to another [2]	1,460	
Left labor force before 1944	2,250	

[1] See note 13, this page. Takes no account of those not reporting 1944. See note 5, p. 3.
[2] See note 12, preceding page.

Another method of illustrating the magnitude of the shifts that have occurred is by comparing them with the March 1944 employment in each occupation group. Such a comparison shows a general shifting of more than 60 percent in and out of occupations in terms of present employment. The shift in the sales group and in service other than domestic has been more than 70 percent as great as the March 1944 woman employment; in domestic service and in manufacturing, more than 65 percent as great. Least shifting has occurred in professional and proprietary occupations. The summary following shows these shifts for each occupation group.

Occupation group	*Ratio of over-all employment shifts [1] to total March 1944 employment*
Total	62.9
Professional and semiprofessional	47.1
Proprietors, managers, and officials	42.1
Clerical and kindred	60.5
Sales	71.5
Manufacturing	67.4
Domestic service	61.5
Other services	72.9
Farm workers	56.3

[1] Total comprises 10,360,000 women who shifted into and out of the labor force or changed occupations. See table 6 of appendix.

[13] See summary on p. 22.

CHANGES IN WOMAN EMPLOYMENT BY INDUSTRY GROUP

Practically half the women employed in March 1944 were in the same broad industry group as formerly, as the following summary shows:

[*In thousands*]

Women employed March 1944	16,480
In same industry group as formerly	8,220
Not in same industry group as formerly	8,270
From other industry groups	1,620
Formerly unemployed	230
From outside the labor force	6,420

Women Remaining in Same Industry Group as Formerly.

Tabulation by industries from this material necessitates combinations into very broad groups. Though the particular occupation greatly influences shifts between industries, data from the sample do not permit correlation of occupation and industry. The summaries following indicate the combinations made along broad industrial lines.

It is not surprising that manufacturing had the smallest proportion of employees who were in the same industry class as formerly (except for the mining-construction-Government group, containing only a relatively small number of women; it is merely a residual group).

The largest proportions of the March 1944 women workers in the same industry group both before Pearl Harbor and in March 1944 were those in the domestic, personal, and recreation services; in the finance, business, and repair, and professional services; and in agriculture.

Industry group	Women in the industry group in March 1944 (in thousands)	Women in the same industry group December 1941 and March 1944	
		Number (in thousands)	Percent of all in the industry group in March 1944
All industries	16,480	8,220	49.9
Agriculture	580	350	60.5
Manufacturing [1]	5,590	2,380	42.6
Transportation, communication, public utilities	680	330	48.0
Trade, wholesale and retail	3,190	1,530	47.8
Finance, business, repair, professional	2,680	1,630	61.0
Domestic, personal, recreation services	2,660	1,660	62.5
Other (mining, construction, Government, forestry, fishing) [2]	1,080	330	30.7
Not ascertainable	20	[3]	

[1] See p. 12 for industries included in each manufacturing group.
[2] These were combined, since this is an "other" industry group.
[3] Less than 5,000.

Women Who Remained in the Labor Force.

Of the women employed in March 1944 in the business-professional group and in domestic and other services, about 70 percent were in the labor force before Pearl Harbor. On the other hand, only 55 to

57 percent of those in trade, in manufacturing, and in the mining-construction-Government group formerly were in the labor force, as appears in the following:

Industry group	Percent who before Pearl Harbor were— In labor force	Not in labor force
All industries	61.0	39.0
Agriculture	64.8	35.2
Manufacturing [1]	56.8	43.2
Transportation, communication, public utilities	60.9	39.1
Trade, wholesale and retail	56.2	43.8
Finance, business, repair, professional	69.6	30.4
Domestic, personal, recreation services	69.1	30.9
Other (mining, construction, Government, forestry, fishing)	54.6	45.4

[1] See text following for industries included in each manufacturing group.

The Various Manufacturing Industries.

Manufacturing industries have been tabulated in separate divisions in order to show the shifts in woman employment between the various types of manufacturing industries, shifts which are of particular importance in wartime. Group I contains the workers in major war manufacturing—in the metal, chemical, and rubber industries. Group II is composed of workers in the consumer industries that supply both the civilian population and the armed forces with essentials—food, clothing, textiles, and leathers. The remaining manufacturing employees are placed in group III. As the following summary shows, group I, the essential war industries that have expanded so rapidly, differed from the two other manufacturing groups in two respects: Its labor force included much smaller proportions of its own former employees, and its recruitment of new personnel was very much greater from within the labor force as well as from outside sources.

Manufacturing group	Women in the industry group in March 1944 [1] (in thousands)	Percent who formerly were— In same manufacturing group	In another manufacturing group	In industry groups other than manufacturing	Outside the labor force
All manufacturing	5,590	38.0	4.6	12.0	43.2
Group I	2,690	23.6	7.7	17.7	49.1
Group II	2,160	53.8	1.0	5.8	36.9
Group III	730	43.8	4.3	9.8	40.3

[1] Totals exceed cross details; in all manufacturing, about 2 percent were unemployed; in group I, 2 percent; in group II, 2.5 percent; in group III, 1.8 percent.

New Entrants to Each Industry Group.

With one exception, the largest numbers of new entrants to every industry group came from home housework, and in almost all groups the second largest number came from the schools; however, 20 percent of the total shifted from other industry groups. Home houseworkers made up nearly 60 percent of the newcomers to agriculture and half those to the domestic-and-personal-service group; and in each of these, schoolgirls were 18 percent of the new workers. On the other hand, the situation was reversed for the transportation-communication group, home houseworkers constituting only 26 percent of the new employees and girls out of school 46 percent. Workers from these two sources

were more nearly equal in number in the business-professional group. The residual mining-construction-Government group differed from the others in that almost as many women newly employed came from other industry groups as from home housework, in each case nearly a third. This and manufacturing group I drew from other industries larger proportions than any other group, and agriculture, trade, manufacturing II, and the services group drew least from other industries.

Regarding those from other sources, the major groups in agriculture and the domestic and personal services were under 14 years of age before Pearl Harbor. Considerable numbers of women formerly unemployed were taken on in each manufacturing group, in trade, and in the miscellaneous mining-construction-Government group. Manufacturing II and the business-professional group took considerable numbers of girls formerly under 14, but larger numbers of those formerly unemployed.

Industry group	New entrants to the industry since Pearl Harbor (in thousands)	Percent who came from—			
		Other industries	Home housework	School	Other activities
Total	[1] 8,270	19.6	43.5	26.5	10.4
Agriculture	230	10.5	58.5	18.1	[2] 12.9
Manufacturing	[3] 3,210	21.0	45.6	24.8	8.6
Group I	2,060	33.2	39.9	20.5	[4] 6.4
Group II	1,000	14.7	48.3	25.8	[5] 11.2
Group III	410	25.2	38.4	28.3	[4] 8.1
Transportation, communication, public utilities	360	24.1	26.4	45.6	4.0
Trade, wholesale and retail	1,670	14.3	45.4	28.4	[4] 11.9
Finance, business, repair, professional	1,040	19.9	39.6	32.4	[4] 8.1
Domestic, personal, recreation services	1,000	15.0	49.7	18.0	[2] 17.2
Other (mining, construction, Government, forestry, fishing)	750	31.3	31.5	26.6	[4] 10.6

[1] Total exceeds details, as industry for 10,000 new entrants not ascertainable.
[2] Major group under 14 before Pearl Harbor.
[3] Details here exceed total entrants to all manufacturing industries, as 260,000 women shifted from group to group within manufacturing.
[4] Major group formerly unemployed.
[5] Includes considerable numbers of those formerly under 14, but larger numbers of unemployed.

Distribution of New Entrants to Labor Force.

Of the women who entered employment from home housework, 40 percent went to manufacturing, chiefly to groups I and II, about half as many to trade, 14 percent to the domestic and personal services, and a somewhat similar proportion, 12 percent, to the business and professional group.

Of the newly employed schoolgirls, proportions similar to those of home houseworkers entered the total manufacturing and trade groups, but a very much smaller proportion went into the domestic and personal services.

Of the girls under 14 entering the labor force, 40 percent went into trade, 35 percent to the domestic and personal services, nearly 10 percent to agriculture. Relatively few entered manufacturing industries, none the third group.

More than half of the unemployed went to manufacturing, chiefly to groups I and II, but very roughly a tenth of them went to each of the

groups of trade, domestic and personal services, mining-construction-Government, and business-professional.

Industry group	Percents entering the industry groups specified who before Pearl Harbor were—	
	In home housework	In school
Number of women (in thousands)	[1] 3,600	[1] 2,190
Percent	100.0	100.0
Agriculture	3.7	1.9
Manufacturing	40.6	36.3
Group I	22.8	19.2
Group II	13.4	11.7
Group III	4.4	5.3
Transportation, communication, public utilities	2.6	7.4
Trade, wholesale and retail	21.0	21.6
Finance, business, repair, professional	11.5	15.4
Domestic, personal, recreation services	13.8	8.2
Other (mining, construction, Government, forestry, fishing)	6.6	9.1

[1] Total exceeds details, as industry group not ascertainable for very small proportions.

Major Shifts Between Industry Groups.

The over-all of shifts between industry groups made in the war period by women who were employed both before Pearl Harbor and in March 1944 involved nearly 2 million women. The largest proportions who entered the various manufacturing groups, the transportation-communication, and the mining-construction-Government groups were from trade. Women entering agriculture, trade, and business-professional went in greatest numbers from the domestic and personal services. Manufacturing group I gained from group II, and each of the manufacturing groups gained from the domestic and personal services. It must be borne in mind that these figures are estimates based on a small sample.

More than 60 percent of the women who left agriculture went to the domestic and personal services. The major war manufacturing industries (group I) attracted more than 50 percent of those leaving manufacturing (groups II and III) and 30 to 40 percent of those leaving the trade, business-professional, and domestic-and-personal-service groups. However, some women went from manufacturing I to the mining-construction-Government group, as did the largest number of those leaving transportation-communication. These may have been largely clerical workers. Of those leaving mining, construction, and so forth, the largest proportion went to business-professional.

Net Gain or Loss in Each Industry Group Since 1940.[14]

Woman employment increased by nearly 50 percent from 1940 to March 1944. However, this does not take account of the 1,710,000 women who were on emergency work or unemployed in 1940, who in reality were a part of the labor force at that time. Addition of these to the 1940 labor force reduces the increase in woman employment by 1944 to about 36 percent.

As would be expected, the greatest increase was in the war industries

[14] See footnote 11, p. 9, for explanation of use of 1940 figures for comparison here, and footnote 1 to summary on p. 9 concerning inclusion of experienced unemployed.

(group I of manufacturing). Next came the mining-construction-Government group, and then transportation-communications. Much smaller increases than elsewhere occurred in the business-professional and agricultural groups, and the domestic and other services group declined considerably.

Naturally, in 1944 a very much larger proportion of the woman labor force than in 1940 was in the war manufacturing industries, and the small proportion in the mining-construction-Government group almost doubled. Smaller proportions of the women employed in 1944 than in 1940 were in the domestic and other services group and the business-professional group. The remaining industry groups contained fairly similar proportions of all women workers in 1940 and in 1944, this being true also of the manufacturing groups II and III, not the primary war industries. The following summary shows the changes in industry distribution of woman employment, 1940 to 1944:

Industry group	Women employed in March 1944 (in thousands)	Net change in woman employment since 1940[1]		Percent distribution in—	
		Number (in thousands)	Percent	1940	March 1944
Total	16,480	[2] +5,340	[2] +48.0	[3] 100.0	[3] 100.0
Agriculture	580	+90	+19.4	4.4	3.5
Manufacturing	5,590	+3,270	+140.7	20.8	33.9
Group I	2,690	+2,210	+462.7	4.3	16.3
Group II	2,160	+830	+62.6	12.0	13.1
Group III	730	+220	+42.6	4.6	4.4
Transportation, communication, public utilities	680	+340	+98.4	3.1	4.2
Trade, wholesale and retail	3,190	+1,160	+57.2	18.2	19.4
Finance, business, repair, professional	2,680	+300	+12.6	21.3	16.2
Domestic, personal, recreation services	2,660	−290	−9.9	26.5	16.1
Other (mining, construction, Government, forestry, fishing)	1,080	+700	+180.0	3.5	6.6

[1] See footnote 1, p. 2, for reason for comparison with 1940 industry data.
[2] Takes no account of the women who in 1940 were unemployed or on emergency work and who were a part of the labor force. Their inclusion reduces the increase to about 36 percent.
[3] Total exceeds details slightly, since those not classifiable are not included.

The Employment Situation Within Each Industry Group.

Manufacturing.—The war manufacturing industries (group I) showed the enormous net gain in woman employment from 1940 to 1944 of more than 460 percent, and this produced a large gain in the total manufacturing employment of women.

The war industries (group I) drew roughly almost equal numbers of women from home housework and from other industry groups, chiefly from trade, the domestic and personal services, and the second manufacturing group. The essential supply industries (group II) and all other manufacturing (group III) drew their new woman workers most largely from home housework and schools. Group II drew the smallest proportion of its new women workers from other industry groups. Other industry sources of women workers for groups I and II were largely trade and the domestic and personal services, and to some extent the business-professional group. Group III also drew a considerable number of women from group II, and group II from group I. All three groups, but especially I and II, took on relatively large numbers of the unemployed women.

Of those leaving these industries many women went to trade, considerable numbers from groups I and III to business-professional industries, and some from group I to mining-construction-Government. As has been indicated, there also was considerable shifting in the woman labor force between the manufacturing groups, from the war industries (I) to the supply industries (II), and from groups II and III to the war industries.

Mining-Construction-Government.—This group shows a larger proportional increase from 1940 to 1944 than any other except war manufacturing. It gained roughly a third of its new workers each from home housework and from other industries, with a proportion only a little smaller from the schools. Of those entering from other industries, the largest numbers were from trade and the business-professional group. Smaller numbers were from the domestic and other services and from women formerly unemployed. Of those leaving this industry group for other employment, most went to the business-professional group, considerably smaller numbers to the essential supply industries (group II).

Transportation-Communication-Public Utilities.—Woman employment in this industry group almost doubled from 1940 to March 1944. Not far from half of its new women employees came from the schools, and more than a fourth came from housework. From other industries, this group gained women workers from trade and from domestic and other services, with considerable numbers also from the business-professional group. Its losses of women were largely to the mining-construction-Government group and to the war manufacturing industries (group I), with considerable numbers going also to the business-professional group.

Trade.—It may seem surprising that this group had well over half again as many women employees in March 1944 as in 1940. Not far from half the new women workers in trade came from home housework, more than a fourth from the schools, and fewer than in any other group had been in other industries. However, some women entered trade from the domestic and other services, smaller numbers from the business-professional group, the manufacturing supply industries (group II), and those formerly unemployed. Of the women leaving trade, most went to manufacturing, especially to the war industries (group I); some went to the mining-construction-Government group, and somewhat smaller numbers to the business-professional group.

Agriculture.—This group employed almost 20 percent more women in the spring of 1944 than in the spring of 1940. About 60 percent of its new women entrants came from home housework, the group next in size from schools. Of the women from other industry groups over 65 percent were from the domestic and other services. Of the women leaving agriculture, over 60 percent went to the domestic and other services, nearly 10 percent to manufacturing I.

Finance-Insurance-Business-Professions.—This industry group had over 10 percent more women employees in March 1944 than in 1940. Very roughly a third of its new women workers came from each of the sources home housework and the schools. Of those from other industry groups the largest numbers formerly were in trade and the domestic and other services. Appreciable numbers came from among the unemployed and the girls who had been under 14. Of the women who left this group for other industries, most went to war manufacturing

(group I), much smaller numbers to mining-construction-Government and to trade.

Domestic-Personal-Recreation Services.—This was the only group that sustained a net loss in number of women workers between 1940 and March 1944. Though it had this net loss, some women had come newly into such employment. Half these came from home housework, and groups of similar size were from schools and from other industries, chiefly from agriculture, with smaller numbers from trade. Considerable numbers of women workers under 14 years of age entered this group. Of the women leaving these services, most went to manufacturing, especially to the war industries (group I), and appreciable numbers went to trade and to the business-professional group.

MARITAL STATUS OF WOMEN WAR WORKERS

To the worker, the items of greatest importance about her job are the character of the work, the conditions under which it is done, and the amount it pays. Whether she be married or single has in itself no bearing on her job. Whatever their marital status, most working women must support themselves, and in many cases others as well. Among single as well as married women a large proportion are homekeepers and many also care for children. Whether she be single or married, the household responsibilities of the woman worker in addition to her outside job may affect seriously her health and efficiency.

To the employer, the important attribute of his workers is their efficiency on the job, and their marital status is of no concern to him unless it should affect the efficiency or regular attendance of his labor force.

Though marital status is of far less significance in the job than other factors, it is a matter of continuous interest. This may be partly because the more significant factors are so much more difficult to determine than the relatively simple data as to marital status. It also is in part a relic of the early idea that society has the right to regulate the lives of women in more personal matters than it does the lives of men.

In 1940, as at all previous census dates, many more single than married women were working, though married women far exceeded single women in the population. A number of things contributed to this. Aside from the matter of tradition, it has become customary for the young woman to develop expertness in some occupation, to be taught that it is incumbent on her to work as a matter of course, to be at least self-supporting, and often to contribute to the family funds more than the amount of her own upkeep.

Increases in Employment of Women, by Marital Status.

Employment increases in the war period were very much greater among married than single women, both in numbers and in proportions of their marital group that entered the labor force, as the following shows:

	Employment increases from 1940 to March 1944	
	Number (in thousands)	*Percent*
Single women	1,700	32
Married women	3,130	75

The large increase among single women is not surprising, since if not already employed they are likely to be more free than married women to go to work. As noted on page 2, marital status was not obtained in March but was transcribed from the February schedule for the same family. In cases where marital status was not available from the February schedule, a woman was listed as single unless there was a man of similar age in the family and no other woman possibly his wife. This explains the difference between the marital-status figures shown here and the February figures reported by the Census. In this time of pressure for added labor supply, the married women for the first time in this country's history exceeded single women in the employed group, and that by nearly 2 points (1.7) in March 1944. Since this was a period of accelerated marriage, the proportion of the married women in the population also had increased, as will be discussed later (p. 21). Numbers then employed were as follows:

	Women employed March 1944	
	Number (in thousands)	*Percent*
Total	16,480	100.0
Single	7,030	42.7
Married	7,310	44.4
Widowed or divorced	2,140	13.0

Various Groups of Married Women.

To discuss married women as a complete group loses sight of significant differences in labor-force status between those whose husbands are present in the home and those whose husbands are absent for one reason or another. Women with husbands absent constitute 12 percent of all married women, but they are 26 percent of the married women employed. The data now made available separate information as to married women with husbands present and those with husbands absent, and for the first time those whose husbands are in the armed forces also are singled out. The latter group has become important during this war period in the increase in employment, as the following shows, though a considerable proportion of the service men's wives had left the labor force before March 1944. (See p. 19.)

This section of the report includes some discussion of these various groups of married women, but again attention must be called to the fact that, as explained on page 2, the figures are estimates from a sample. Therefore, while they give a good general indication as to the relationships of the various groups, including the relative place of some that are quite small in comparison with others, they cannot be interpreted as measuring the size of these groups with exactitude.

	Women employed in March 1944		
	Number (in thousands)	*Percent*	*Percent in 1940*
All women	[1] 16,480	100.0	100.0
Single	7,030	42.7	47.9
Married	7,300	----	----
Husband present	5,370	32.6	31.9
Husband absent—			
In armed forces	1,280	7.7	5.6
Not in armed forces	650	4.0	----
Widowed or divorced	2,140	13.0	14.6

[1] Total exceeds details, as there were 10,000 women for whom husbands' status was not ascertainable.

Women's Labor-Force Status, by Marital Status in March 1944.

Of the women who were in the labor force both before Pearl Harbor and in March 1944, 42 percent were single, 30 percent married with husband present, 16 percent widowed or divorced. Of the new entrants after Pearl Harbor, nearly 44 percent were single, about 36 percent married with husband present, nearly 10 percent were women with husbands in the armed forces, and a somewhat smaller proportion were widowed or divorced.

Of the women not in the labor force in either period, the March 1944 status was that 65 percent were married with husband present, 17 percent single, 13 percent widowed or divorced. Eighty percent of the total were in home housework, some were in school, a few had been under 14 before Pearl Harbor.

Of those who had left the labor force between the Pearl Harbor date and March 1944, 62 percent were married with husband present, about 12 percent each were single or were service wives, nearly 10 percent widowed or divorced. Of the total of this group nearly 93 percent had gone into home housework.

Marital status	Percent in each marital status of those who—			
	Were in labor force at both dates	Entered labor force between dates	Were not in labor force at either date	Left labor force since Pearl Harbor
All groups (in thousands)	10,230	6,650	33,260	2,180
Single	42	44	17	12
Married:				
Husband present	30	36	65	62
Husband absent—				
In armed forces	7	9	3	13
Other	5	3	2	3
Widowed or divorced	16	8	13	10

Relative Stability of Single and Married Women Workers.

A consideration of the women at work in March 1944 who were employed before Pearl Harbor shows as very nearly equal the stability of single and married women. In each group between 56 and 59 percent had been employed before Pearl Harbor, and the numbers of the single and the married women who were at work in both periods are remarkably similar. Of those employed before Pearl Harbor who had continued to work, the smallest proportion was among the women with husbands in the armed forces. Even of these, more than half were employed at both times, but their not remaining employed may be explained by the availability of financial allotments for their livelihood and by their assumption of new responsibilities of home and children, which would fill their time. Increased mobility during wartime might add to or detract from numbers of employed married

women in various areas, depending on a variety of factors. The following summary shows the figures just discussed, with others:

Marital status	Employed before Pearl Harbor and in March 1944: Number employed at both dates (in thousands)	Employed before Pearl Harbor and in March 1944: Percent of all March 1944 employed women
All women	9,830	59.7
Single	4,140	58.9
Married	[1] 4,130	56.4
Husband present	3,010	56.1
Husband absent—		
In armed forces	660	51.5
Not in armed forces	450	68.5
Widowed or divorced	1,560	73.1

[1] Total exceeds details, as status of some husbands not ascertainable.

Marital Status and Former Activity of New Accessions to the Woman Labor Force.

Of the 6,650,000 women in the labor force in 1944 who were not employed before Pearl Harbor, over 40 percent were single and a number not very far short of this were married, with husbands present.

Among the single women, 68 percent formerly were in school. Among the 2 million young women who had been in school, about 90 percent were single women (1,970,000 of them). However, there were a considerable number of young wives with husbands now in the armed forces who were former schoolgirls.

Of the 3½ million women workers who formerly were home housework, more than 2 million were married with husbands present in the home.

The summary following shows the previous activities of the major proportions of the new women workers in the various marital groups:

Marital status	New women workers in 1944 (in thousands)	Percent who before Pearl Harbor were—			
		Unemployed	In home housework	In school	Other
Total	6,650	3.4	54.1	33.0	9.5
Single	2,890	4.4	13.5	68.0	14.0
Married	3,190	1.7	86.0	7.0	5.4
Husband present	2,360	1.1	91.3	3.5	4.1
Husband absent—					
In armed forces	620	2.4	67.7	20.4	9.5
Not in armed forces	210	5.8	80.1	6.2	7.9
Status of husband not ascertainable	[1]		100.0		
Widowed or divorced	570	7.7	81.4	.8	10.1

[1] Less than 5,000.

Marital Status and Activity of Women Who Left the Labor Force.

Among the women who were employed just before Pearl Harbor, 2,250,000 left employment prior to March 1944. Over 60 percent of these are married women with husbands present. More than a tenth are those with husbands in the armed services, a smaller proportion are single women, and still fewer are widowed or divorced. In each group the great majority of those who left employment returned to

home housework; in the case of married women with husbands present, this group comprises over 96 percent of all those leaving. Very roughly a tenth of the widowed or divorced women and of those with husbands in the armed forces are still in the labor force but unemployed in March 1944, and this is true of a somewhat larger proportion of the single women. Small numbers have returned to school, nearly all of these being single girls.

The summary following shows the activities of the women in each marital group who left employment between Pearl Harbor and March 1944.

Marital status	Women who left employment since Pearl Harbor (in thousands)	Percent who in March 1944 were—			
		Unemployed	In home housework	In school	Other [1]
All women	2,250	6.0	87.8	0.5	5.7
Single	280	13.0	62.5	2.7	21.8
Married:					
Husband present	1,370	3.0	96.3	(2)	.7
Husband absent—					
In armed forces	300	10.1	86.2	.5	3.3
Not in armed forces	80	8.6	83.0	.7	7.8
Status of husband not ascertainable	(3)		100.0		
Widowed or divorced	210	9.1	70.6	.7	19.6

[1] Includes those unable to work.
[2] Less than 0.05 percent.
[3] Less than 5,000.

Increasing Employment of Married Women.

Though single women formerly have made up the greater part of this country's woman labor force, it has become necessary for an increasing number of married women to work, a factor in American economy that cannot be ignored. To begin with, there now are in the population about 2½ million more married women and some millions fewer single women than in 1940 to help carry on the country's production and services. The proportion of married women in the entire woman population increased by 8 or 9 percent, 1940 to 1944, while the number of single women declined by from 6 to 9 percent.

The time has passed when a woman automatically can leave the labor market merely because of her marriage. Efforts to push her out for that inconsequential reason may result in unwarranted family hardship. In an increasing number of instances her earnings are necessary to support the new home. In many cases she could not marry unless her earnings helped to establish the home. In perhaps more cases she could not marry unless she continued to shoulder her premarital financial responsibilities in her parents' home. An important population trend that contributes considerably to this situation is the increase in the proportion of older persons. Young persons often must continue after marriage to carry part of the support of family members who are passing beyond working age or are so young as still to be in school. The responsibility of the individual family for its older members is likely to be unchanged for a number of years to come, since the proportion of these older persons in the population is increasing and their needs are not yet adequately provided for

through the developing assurance systems. In many families some part of this load is being assumed, and must continue to be assumed, by the working wife and the married daughter.

During the war period more than a million married women with husbands present have left employment—1,370,000—most of them to enter home housework. This indicates that those who are able to do so in general are likely to return to their homes. Those who remain in their occupations find it necessary to continue work for some reason, and in the postwar period they should not be discriminated against in employment for arbitrary reasons, such as marital status, that have no connection with their working ability.

The proportional increase in married women, combined with other economic and population factors such as have been discussed, makes it probable that after the war there will be more married women in the labor force than before the war, though the number is likely to be smaller than at the war peak.

The proportions among the women of each marital group who were employed in 1940 and in March 1944 are as follows:

Marital status	Woman population in 1940 [1]		Woman population in March 1944		
	Number (in thousands)	Percent employed in 1940 [2]	Number [3] (in thousands)	Percent change from 1940	Percent employed in March 1944
Total	50,550	22.0	52,320	+3.5	31.5
Single [4]	13,940	38.3	13,110	−6.0	53.6
Married	30,090	13.9	32,490	+8.0	22.5
Widowed or divorced	6,520	25.0	6,720	+3.0	31.8

[1] U. S. Census of 1940. Population, Vol. IV, table IX, p. 5, and table 2, p. 9.
[2] Ibid., Vol. III, table 68, p. 111.
[3] Marital status figures shown here were transcribed from February schedules. See text on p. 18 for explanation.
[4] Marital status of population shown only for persons 15 and over. Age group 14 assumed to be single.

AGE OF WOMEN WORKERS AND WOMEN NOT AT WORK

Of the women in the labor force in March 1944, 55 percent were under 35 years of age, but of those not in the labor force nearly 60 percent were 35 years of age or older, more than 40 percent being at least 45.

Of women in the labor force before Pearl Harbor as well as in March 1944, over half were 35 years of age or older. The largest group were 45 years old or more, with almost as many 25 to 34. The opposite situation existed among those that newly entered the labor force during the war period, nearly half being under 25 years of age and the largest group under 20.

Of workers who were not in the labor force at either date, 60 percent were 35 years old or more, the largest group being 45 or over. However, of former workers who had left the labor force during the war, 60 percent were under 35, the largest group being 25 to 34.

Labor-force status	Number of women (in thousands)	Percent whose age in March 1944 was—				
		Under 20	20–24	25–34	35–44	45 or over
Total in labor force in March 1944	16,880	13.1	18.8	23.0	21.5	23.5
In labor force before Pearl Harbor and also in March 1944	10,230	2.9	18.9	26.3	23.9	27.9
Entered labor force since Pearl Harbor	6,650	28.6	18.7	17.9	17.9	16.8
Total not in labor force in March 1944	35,440	13.4	7.9	19.8	17.6	41.3
Not in labor force at either date	33,260	14.0	6.8	18.9	17.6	42.6
Left labor force since Pearl Harbor	2,180	4.0	23.9	33.6	17.2	21.1

Former and Present Activity Status, by Age.

Among the home houseworkers, nearly half of those who did not enter the labor force were 45 years of age or more, but of those who went to work after Pearl Harbor over 70 percent were under 45.

Almost a third of the schoolgirls entering the labor force after Pearl Harbor were at least 20 years of age, but of those who did not take jobs only 15 percent were as old as 20.

Few of the women formerly unable to work took jobs after Pearl Harbor; of those who did not take jobs over 90 percent were 45 or more.

Labor-force status in 1941 and subsequent status	Number of women (in thousands)	Percent who were—		
		Under 20	20–44	45 or over
In home housework in 1941:				
Entered labor force	3,710	1.7	70.1	28.2
Did not enter	26,070	1.0	52.2	46.8
In school in 1941:				
Entered labor force	2,280	68.6	31.3	.1
Did not enter	2,200	85.3	14.7	----
Unable to work in 1941:				
Did not enter	1,820	1.4	7.7	91.0

Labor-Force Status and Marital Status, by Age.

Of the single women in the labor force in March 1944, 90 percent were under 45 years of age; of those who were widowed or divorced, more than 60 percent were 45 or over. Among the women in the labor force, practically a third of those who were married with husbands present and of those with husbands absent but not in the armed forces were 45 years of age or older. Those with husbands in the armed services were younger women. This distribution of the women of each marital status was similar for the groups that entered the labor force after Pearl Harbor and those who already were in the labor force, except that the women newly entering from the group with husbands absent but not in the armed services tended to be younger than those of the same marital group but already in the labor force.

Among those who were not in the labor force, over 70 percent of the single women and more than a tenth of the women with husbands in the armed services were under 20 years of age. In every other group those not in the labor force tended to be older; more than 90 percent of the widowed and divorced and more than 40 percent of those married

but with husbands present, or husbands absent but not in the armed forces, were at least 45. The proportions who were 45 years of age or older were larger among those who formerly were not at work than among those who had left the labor force, except for single women, among whom more than a tenth of those who left the labor force were under 20 years of age and hence may be expected to have resumed their schooling.

APPENDIX—GENERAL TABLES

[Note.—Because of rounding of numbers, details and totals do not agree in all cases.]

TABLE 1.—*Activity status in March 1944 of women 14 years old or more at that time, by their activity status in week preceding Pearl Harbor*

[In thousands]

Activity status in week before Pearl Harbor	Women in status specified in week before Pearl Harbor	Activity status in March 1944							
		Women in labor force			Women not in labor force				
		Total	Employed	Unemployed	Total	In home housework	In school	Unable to work	Other
Total	[1] 52,320	16,880	16,480	400	35,440	28,750	3,940	2,310	430
In labor force	12,410	10,230	10,060	170	2,180	2,020	20	70	70
Employed	12,090	9,970	9,830	130	2,120	1,980	10	70	60
Unemployed	320	260	230	40	60	40	[2]	[2]	10
Seeking work	100	90	70	20	10	10			[2]
Not seeking	80	60	50	10	20	10	[2]	[2]	[2]
Emergency work	140	110	110	[2]	40	30		[2]	[2]
Not in labor force	39,000	6,310	6,100	210	32,690	26,240	3,890	2,210	350
In home housework	29,780	3,710	3,600	110	26,070	25,550	20	390	110
In school	4,480	2,280	2,190	90	2,200	520	1,580	10	90
Unable to work	1,830	10	10		1,820	30	[2]	1,790	
Under 14	2,670	240	230	10	2,440	120	2,290	10	20
Other	230	70	70	[2]	160	30		10	120
Labor-force status not ascertainable	910	340	330	10	570	490	30	30	10

[1] Woman population 14 years old or more in March 1944.
[2] Less than 5,000.

TABLE 2.—*Activity status of major groups of women in March 1944, by status in week preceding Pearl Harbor*

Activity status	Women in status specified in week before Pearl Harbor (in thousands)	Percent of group specified whose status in March 1944 was—				
		Employed	Unemployed	In home housework	In school	Other
In labor force:						
Employed	12,090	81.4	1.1	16.4	0.1	1.1
Unemployed	320	69.3	12.0	13.2	1.2	4.3
Not in labor force:						
In home housework	29,780	12.1	.4	85.8	.1	1.7
In school	4,480	48.9	1.9	11.7	35.2	2.3
Under 14	2,670	8.5	.3	4.3	85.7	1.2

TABLE 3.—*Percent distribution of chief groups of women in March 1944 according to activity status in week preceding Pearl Harbor*

Activity status	Percent distribution before Pearl Harbor of women who in March 1944 were—				
	In all types of activity	Employed	Unemployed	In home housework	In school
Total (in thousands)	[1] 52,320	16,480	400	28,750	3,940
	100.0	100.0	100.0	100.0	100.0
In labor force:					
Employed	23.1	59.7	33.5	6.9	0.3
Unemployed	.6	1.4	9.7	.1	.1
Not in labor force:					
In home housework	56.9	21.8	28.3	88.9	.4
In school	8.6	13.3	21.6	1.8	40.1
Unable to work	3.5	.1		.1	.1
Under 14	5.1	1.4	2.1	.4	58.2
Other and not ascertainable	2.2	2.4	4.7	1.8	.8

[1] Women 14 years old or more in March 1944.

TABLE 4.—*Occupation group of women employed in March 1944, by labor-force status in week preceding Pearl Harbor*

[In thousands]

Occupation group	Number of women in the group March 1944	In labor force both before Pearl Harbor and in March 1944		Not in labor force before Pearl Harbor	
		Number	Percent of all in occupation group March 1944	Number	Percent of all in occupation group March 1944
Total	16,480	10,060	61.0	6,420	39.0
Professional and semiprofessional	1,490	1,140	76.3	350	23.7
Proprietors, managers, and officials	650	540	82.4	110	17.6
Clerical and kindred	4,380	2,610	59.5	1,770	40.5
Sales	1,240	590	48.0	640	52.0
Craftsmen, foremen, operatives, and laborers except farm	4,920	2,750	55.9	2,170	44.1
Domestic service	1,570	1,110	71.0	450	29.0
Other services	1,650	950	57.5	700	42.5
Farm workers	560	360	65.0	200	35.0
Not classifiable	20	10	25.1	20	74.9

TABLE 5.—*Occupation group in December 1941 of women who shifted to new occupation group before March 1944*

Occupation group in March 1944	Percent distribution of women according to occupation group in which employed before Pearl Harbor							
	Professional and semiprofessional	Proprietors, managers, and officials	Clerical and kindred	Sales	Craftsmen, foremen, operatives, and laborers except farm	Domestic service	Other services	Farm workers
All occupations (1,460,000 women)	5.3	2.2	7.0	17.1	13.4	27.4	19.0	7.5
Professional and semiprofessional		3.4	32.4	20.6	12.4	8.8	14.2	8.1
Proprietors, managers, and officials	1.0		22.1	33.6	15.7	4.7	20.6	2.4
Clerical and kindred	8.5	4.7		33.7	32.3	5.7	12.1	1.9
Sales	10.2		19.8		26.7	9.7	29.7	1.1
Craftsmen, foremen, operatives, and laborers except farm	5.6	1.7	9.3	14.0		34.7	29.3	4.5
Domestic service	2.9	.4		1.6	4.7		23.3	65.6
Other services	.7	1.1	1.4	8.8	17.0	68.7		1.7
Farm workers	6.8	7.0			21.4	64.8		

TABLE 6.—*Over-all of women's employment in same occupation and their shifts in and out of labor force and between occupations, December 1941 to March 1944*

[In thousands]

Occupation group	Women who remained in same occupation and women who changed activity or occupation, December 1941 to March 1944 combined [1]	Women in same occupation in March 1944 as before Pearl Harbor	Women who shifted their occupation or employment status				
			Grand total, all shifts	Entered labor force or changed occupation since Pearl Harbor			Left the labor force before March 1944 [2] (estimate)
				Total	Entered employment	Changed occupation	
All occupations	[1] 18,730	8,370	10,360	8,110	6,650	1,460	2,250
Professional and semiprofessional	1,780	1,080	700	400	360	40	300
Proprietors, managers, and officials	740	460	270	190	120	70	90
Clerical and kindred	4,860	2,210	2,650	2,170	1,830	340	480
Sales	1,400	510	890	730	650	80	160
Craftsmen, foremen, operatives, and laborers except farm	5,380	2,060	3,320	2,860	2,290	570	460
Domestic service	1,970	1,000	960	570	470	100	400
Other services	1,910	700	1,200	950	730	220	260
Farm workers	660	340	320	220	200	20	100
Not classifiable	50	[3]	50	20	20	10	30

[1] Does not take account of individuals making several shifts within the period.
[2] Distributed according to 1940 Census of Occupations of employed women.
[3] Less than 1,000.

TABLE 7.—*Industry group of women employed in March 1944 by labor-force status in week preceding Pearl Harbor*

[In thousands]

Industry group	Women in industry group in March 1944	In labor force before Pearl Harbor		Not in labor force before Pearl Harbor	
		Number of women	Percent of all in the industry group in March 1944	Number of women	Percent of all in the industry group in March 1944
Total	16,480	10,060	61.0	6,420	39.0
Agriculture	580	380	64.8	200	35.2
Manufacturing	[1] 5,590	3,170	56.8	2,420	43.2
Group I	2,690	1,370	50.9	1,320	49.1
Group II	2,160	1,370	63.1	800	36.9
Group III	730	440	59.7	290	40.3
Transportation, communication, public utilities	680	420	60.9	270	39.1
Trade, wholesale and retail	3,190	1,790	56.2	1,400	43.8
Finance, business, repair, professional	2,680	1,860	69.6	810	30.4
Domestic, personal, recreation services	2,660	1,840	69.1	820	30.9
Other (mining, construction, Government, forestry, fishing)	1,080	590	54.6	490	45.4
Not ascertainable	20	10	40.0	10	60.0

[1] See p. 12 for industries included in each group.

TABLE 8.—*Former industry group of women who shifted to new industry group*

Industry group to which women shifted since Pearl Harbor	Percent distribution of women according to industry group in which employed before Pearl Harbor									
	Agriculture	Manufacturing				Transportation, communication	Trade	Business, professional	Domestic and other services	Mining, etc.
		Total	Group I	Group II	Group III					
All industries (1,880,000)	6.0	8.8	3.7	12.5	6.4	2.9	26.4	13.7	24.6	2.4
Agriculture		13.3	4.0		9.4		6.5	6.3	67.4	6.4
Manufacturing	3.2					2.2	42.5	18.3	30.8	2.0
Group I	1.6	30.3		20.9	9.3	1.3	29.7	14.8	20.9	.8
Group II	5.4	14.7	8.3		6.4	3.1	35.9	9.1	27.4	4.1
Group III	3.1	30.4	9.2	21.2		1.5	29.4	8.7	23.3	2.0
Transportation, communication, public utilities	2.0	12.3	4.2	8.1			34.6	14.2	27.7	4.4
Trade, wholesale and retail	1.8	23.7	4.8	14.2	4.7	2.4		20.5	48.3	1.6
Finance, business, repair, professional	3.2	19.6	5.8	3.3	10.5	3.1	31.6		32.7	9.6
Domestic, personal, recreation services	47.6	8.7	3.0	3.6	2.0	4.0	26.4	11.1		1.2
Other (mining, construction, Government, forestry, fishing)	2.4	17.3	6.2	7.4	3.7	8.7	30.9	23.2	12.6	

TABLE 9.—*Labor-force status of women in March 1944 and in week preceding Pearl Harbor, by marital status*

[In thousands]

Labor-force status	Marital status					
	Total [1]	Single	Widowed or divorced	Married, husband present	Married, husband absent in the armed forces	Married, husband absent not in the armed forces
	NUMBER OF WOMEN					
Woman population	52,320	13,110	6,720	28,510	2,580	1,360
In labor force March 1944	16,880	7,230	2,180	5,460	1,330	670
In labor force at both dates	10,230	4,330	1,630	3,090	700	470
Entered labor force between dates	6,650	2,900	550	2,370	620	200
Under 14 before Pearl Harbor	240	230	----	----	[3]	[3]
Not in labor force March 1944	35,440	5,880	4,540	23,050	1,250	690
Not in labor force at either date [2]	33,260	5,610	4,330	21,700	980	620
At both dates—						
In home housework	25,550	900	2,640	20,740	750	510
In school	1,580	1,570	----	[3]	10	[3]
Unable to work	1,790	300	1,230	210	10	40
Under 14 before Pearl Harbor and not in labor force March 1944	2,440	2,400	----	20	10	[3]
Left labor force since Pearl Harbor	2,180	270	210	1,350	280	70
In home housework March 1944	2,020	180	170	1,340	270	70
	PERCENT DISTRIBUTION					
Woman population	100.0	100.0	100.0	100.0	100.0	100.0
In labor force at both dates	19.6	33.0	24.2	10.8	27.3	34.5
Entered labor force between dates	12.7	22.1	8.3	8.3	24.2	14.8
Not in labor force at either date	63.6	42.8	64.4	76.1	37.8	45.4
Left labor force since Pearl Harbor	4.2	2.1	3.1	4.7	10.8	5.3

[1] Totals exceed cross details, as details not shown for 40,000 women married but with husband's status not ascertainable. For source of data on marital status see p. 18.
[2] Totals exceed details, as details not shown for 1,900,000 in other activities.
[3] Less than 5,000.

TABLE 10.—*Percent distribution of women according to marital status, by labor-force status in March 1944 and in week preceding Pearl Harbor*

Labor-force status	Total number of women [1] (in thousands)	Percent of total women who were—				
		Single	Widowed or divorced	Married, husband present	Married, husband absent in the armed forces	Married, husband absent not in the armed forces
Woman population	52,320	25.1	12.8	54.5	4.9	2.6
In labor force March 1944	16,880	42.8	12.9	32.3	7.9	4.0
In labor force at both dates	10,230	42.3	15.9	30.2	6.9	4.6
Entered labor force between dates	6,650	43.5	8.3	35.6	9.4	3.0
Under 14 before Pearl Harbor	240	97.1	----	----	1.3	1.5
Not in labor force March 1944	35,440	16.6	12.8	65.0	3.5	2.0
Not in labor force at either date	33,260	16.9	13.0	65.3	2.9	1.9
At both dates—						
In home housework	25,550	3.5	10.4	81.2	2.9	2.0
In school	1,580	99.3	----	.2	.4	.1
Unable to work	1,790	16.7	68.7	11.7	.3	2.5
Under 14 before Pearl Harbor and not in labor force March 1944	2,440	98.6	----	1.0	.3	.1
Left labor force since Pearl Harbor	2,180	12.4	9.6	61.8	12.7	3.3
In home housework March 1944	2,020	9.0	8.2	66.2	13.2	3.2

[1] Aged 14 and over. For source of data on marital status see p. 18.

TABLE 11.—*Marital status and age of women in labor force March 1944*

Marital status of women in labor force	Number of women (in thousands)	Percent whose age in March 1944 was—		
		Under 20	20–44	45 or over
Total in labor force in March 1944	[1] 16,880	13.1	63.4	23.5
Single	7,230	27.8	62.4	9.8
Widowed or divorced	2,180	.1	38.7	61.2
Married, husband present	5,460	1.2	67.8	31.0
Married, husband absent, in armed forces	1,330	8.6	89.7	1.6
Married, husband absent, not in armed forces	670	1.4	66.8	31.8
In labor force both March 1944 and before Pearl Harbor	[1] 10,230	2.9	69.2	27.9
Single	4,330	6.1	79.3	14.6
Widowed or divorced	1,630	.1	38.4	61.5
Married, husband present	3,090	.4	65.8	33.7
Married, husband absent, in armed forces	700	2.8	95.5	1.7
Married, husband absent, not in armed forces	470	.5	64.5	35.0
Came into labor force since Pearl Harbor	[1] 6,650	28.6	54.6	16.8
Single	2,900	60.3	37.1	2.6
Widowed or divorced	550	.2	39.7	60.1
Married, husband present	2,370	2.3	70.3	27.4
Married, husband absent, in armed forces	620	15.3	83.2	1.5
Married, husband absent, not in armed forces	200	3.6	72.1	24.2

[1] Total exceeds details, as details not shown for women with husbands' status not ascertainable. In interpreting, note statement as to sample on p. 2, and p. 18.

TABLE 12.—*Marital status and age of women not in labor force March 1944*

Marital status of women not in labor force	Number of women (in thousands)	Percent whose age in March 1944 was—		
		Under 20	20–44	45 or over
Total not in labor force in March 1944	[1] 35,440	13.4	45.3	41.3
Single	5,880	71.9	15.9	12.2
Widowed or divorced	4,540	.1	6.6	93.2
Married, husband present	23,050	1.4	58.1	40.5
Married, husband absent, in armed forces	1,250	13.5	84.3	2.3
Married, husband absent, not in armed forces	690	4.1	49.3	46.5
Not in labor force at either date	[1] 33,260	14.0	43.4	42.6
Single	5,610	74.8	13.2	12.0
Widowed or divorced	4,330	.1	5.9	94.0
Married, husband present	21,700	1.3	56.8	42.0
Married, husband absent, in armed forces	980	15.7	81.6	2.7
Married, husband absent, not in armed forces	620	3.7	47.9	48.5
Left labor force since Pearl Harbor	[1] 2,180	4.0	74.8	21.1
Single	270	11.1	72.1	16.8
Widowed or divorced	210	1.0	21.6	77.4
Married, husband present	1,350	2.6	80.3	17.1
Married, husband absent, in armed forces	280	5.5	93.9	.6
Married, husband absent, not in armed forces	70	8.0	62.0	30.1

[1] Total exceeds details, as details not shown for women with husbands' status not ascertainable. See p. 18.

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Serial No. R. 1502

[From the MONTHLY LABOR REVIEW (December 1942) of the Bureau of Labor Statistics, United States Department of Labor]

WAR WORK OF THE WOMEN'S BUREAU, U. S. DEPARTMENT OF LABOR

EARLY in 1941 the Women's Bureau was formally recognized as the official agency for all matters relating to women's employment in the war effort. It had recorded the World War experience in the use of woman labor in 1917 and 1918 and, for many years thereafter, had been consulted by the Planning Division of the War Department concerning the employment of women during any future war. It was natural, therefore, that the Under Secretary of War, Robert P. Patterson, should write the Secretary of Labor, under date of March 15, 1941, "* * * I shall take measures to see that the services in the War Department take up all matters of concern to woman workers with the Women's Bureau."

Since that date there has been close cooperation with the several services in the War Department to bring about the most effective employment of women in war industries. Cooperative relationships have been established, as occasion warranted, with the Navy Department, Civil Aeronautics Board, Office of Vocational Education for National Defense, National Housing Authority, Office of Defense Health and Welfare Services, National Labor Relations Board, War Production Board, State labor departments, women in labor unions, USO organizations, scores of individual employers having war contracts, and latterly with the War Manpower Commission.

Analyses of Jobs for Women in War Industries

Although War Department's plans called for utilization of women in war industries and several arsenals pioneered in extending women's employment to many processes, the availability of masses of men during 1940 and early 1941 resulted in a lack of interest in woman workers on the part of private employers. It was deemed advisable to take advantage of this pre-war period to become fully informed of modern methods of producing the weapons of war, to review the background of women's employment during World War I, and to make careful analyses of jobs in relation to their suitability for women.

The work women were doing on punch presses, drilling machines, milling machines, lathes, grinders, and polishers, as well as their high record of achievement in inspection, assembly, filing, and other bench work in peacetime metal and electrical industries were well known to the Women's Bureau. The extent to which these developed skills would be useful to war-implement industries was easily demonstrated. In the last war women had proved themselves able in an emergency to make good on any job, if adequately trained. However, for practical purposes in the first year of the present war, it seemed advisable to

limit recommendations for women's employment to work comparable to what many women have done or are doing in other industries—to work the average woman can do as well as, or better than, the average man. If women were placed in such occupations only, the greatly expanded war production program could be met with a labor force composed one-fourth of women.

In the following pages is given a summary of suggestions as to possibilities of extended utilization of women in principal operations in the making of airplanes, instruments of varied types, and small arms and artillery ammunition, which was made for Government departments and private employers during 1941. Detailed descriptions of occupations are given in the body of a report on each industry. In 1942, similar occupational analyses were or are being made of pistol, rifle, and gun manufacture, machine-tool production, shipbuilding, airplane engine and propeller building, and explosives manufacture. As demands of the Army and Navy call more men from production, these analyses will be extended to other industries.

Women's employment in war industries has increased materially in the last 6 months. Most spectacular is their employment in airframe manufacturing, where they constitute 13 percent of the productive staff as compared to less than 1 percent in 1941. Estimates of May 1942 indicate that even when office workers are included the total number of women in manufacturing war supplies is less than a million or 11 percent of the almost 8 million workers. Obviously, full utilization of women in the occupations listed below is far from being achieved.

AIRCRAFT ASSEMBLY [1]

In every department of the aircraft industry, as now organized there are varying proportions of occupations in which women may be employed as the industry expands. In all departments there are jobs deemed not suitable for women, either because the work is beyond the average woman's physical strength (570/1000 that of man) and resistance (679/1000 that of man), or because the work requires lengthy experience and training which the emergency does not permit.

However, many of the jobs which women can do most effectively are to be found in production departments, such as machine shop, the press and forming, metal fabrication, bench and stainless steel assemblies, the assembly of the fuselage, wings, control surfaces, cowling, fairing, tank, final assembly, painting, covering, heat treating, anodizing, and welding departments. From a practical standpoint at the present time, departments concerned with the design, lay-out, making and repairing of patterns, molds, templates, jigs, fixtures, tools, and experimental planes, and the service departments, require a high degree of mechanical skill and experience which few women have or could obtain in a short period. In the foundry, shipping, receiving, trucking, and maintenance, much of the work is intermittently heavy and concerned with cumbersome parts. The jobs involved in these departments, however, include not more than 15 percent of the total factory employment.

[1] See U. S. Women's Bureau Bulletin No. 189–1: Women's Factory Employment in an Expanding Aircraft Production Program, Washington, 1942.

As a conservative estimate it seems reasonable that at least one-fourth to one-third of the jobs in the aircraft-assembly plants might be filled satisfactorily by women.

The following is a list of the principal jobs on which women may be employed effectively:

Machine operating:
- Drilling, reaming, countersinking on single, multiple drills, and pneumatic drills.
- Small milling machines.
- Small turret lathes.
- Small and medium-sized punch presses.
- Small angle-bending machines and brakes.
- Light grinders.
- Riveting and dimpling machines.
- Spot welding.

Bench work:
- Burring and filing of all kinds.
- Soldering.
- Hand forming over templates and blocks.
- Tube cutting, bending, and assembly.
- Electrical assemblies.
- Wiring and bending.
- Subassemblies in jigs and at benches.

Hand and machine sewing of covers and fabric accessories.
Stretching of covers on plane surfaces.
Doping.
Painting—Spraying of small parts, stenciling, applying decalcomanias, masking, touch-up, etc.
Racking in paint, heat treating, anodizing, and plating departments.
Detail inspection of parts and subassemblies.
Departmental factory clerks and assistants in planning, parts control, blueprint despatching, and drafting.
Tool-room attendants.

INSTRUMENTS—AIRCRAFT, OPTICAL AND FIRE-CONTROL, AND SURGICAL AND DENTAL [2]

In normal times the manufacture of instruments of the types covered was on a relatively small scale, and much of the production of aircraft and fire-control instruments was on a constantly changing and experimental basis. For many years, machining and assembly were done almost entirely by men classed as all-round skilled instrument makers. However, with increased production, jobs have been broken down and women employed to a considerable extent. The proportion of women and the jobs on which they are employed, however, differ materially from plant to plant. In some plants women are working satisfactorily on machine and assembly operations, while for the same jobs in other plants women have never been considered.

In Great Britain special training courses have been offered to women as well as men in the making and fitting of instruments. Instruction covering both theory and practical application is provided in correct use of tools, gages, calipers, verniers, micrometers, and in blueprint reading, soldering, buffing, drill presses, lathes, gear cutters, milling, precision fitting, and bench assembly. In the United States, in the defense training program in most of the cities visited, general courses in machine-shop practice and assembly were open to relatively few

[2] See U. S. Women's Bureau Bulletin No. 189-4: The Employment of and Demand for Women Workers in the Manufacture of Instruments—Aircraft, Optical and Fire-Control, and Surgical and Dental, Washington, 1942.

women. Only two plants had courses of study and specific training programs as formal instruction for employees, and in one plant only men had been admitted because the training was given primarily as part of an upgrading plan and the policy was not to consider women for job progression beyond unskilled repetitive work. In all other plants, training was on the job. Many of the beginning jobs in the machine-shop, assembly, and inspection sections have been closed to women, as these operations are regarded as the beginning step for young boys who progress to more skilled work.

The summary presented below is merely indicative of the kinds of work being done and the feasibility of extending the employment of women on the various processes.

Aircraft instruments

	Sex	Possible extension of women's employment
Assembly and bench work:		
Mechanism subassembly	M and W	Proportion could be increased.
Mechanism final assembly	M and W	Do.
Special assemblies—		
Diaphragm	M	Women could be used entirely.
Pitot tube	M	Slight probability of using.
Gyro motors	M and W	Proportion could be increased.
Autosyn electric motors	M and W	Do.
Closing of instruments	M and W	Women could be used entirely.
Testing and inspecting:		
Parts inspection	M and W	Proportion could be increased if trained or upgraded from instrument-assembly operations.
Calibrating	M and W	
Electrical tests	M and W	
Cold, vibration, and run tests	M and W	
Final instrument inspection	M	

Optical and fire-control instruments

Optical work:		
Blocking	M and W	Only a few women used on single-spindle blocking and polishing.
Grinding	M	
Polishing	M and W	
Centering	M and W	With training, women could be used or proportion might be increased on all operations.
Cementing, engraving, etching, and silvering.	M and W	
Cleaning and inspecting	M and W	
Assembly and bench work:		
Range and height finders, panoramic sights, periscopes, plotting boards, quadrants, sextants, octants, etc.—		
Minor subassemblies	M and W	Subassemblies made by women are very minor; not much possibility of increasing proportion.
Main assemblies	M	
Binoculars, telescopes, aircraft sights, and small gunsights—		
Mounting, cleaning, and inspecting optical parts.	M and W	Proportion could be increased.
Sighting, adjusting, collimating, calibrating, etc.	M	With training, women could do in part.

Surgical and dental instruments

	Sex	Possible extension o women's employment
Assembly and bench work:		
Forceps, pliers, retractors, etc	M	Slight probability of increasing proportion.
Dental stands and chairs—		
Minor subassemblies	M and W	
Main assemblies	M	
Dental hand pieces and fittings	M and W	Proportion could be increased.
Clinical thermometers	M and W	Women employed extensively.
Special machining of dental burrs and broaches.	M and W	Do.

General operations applicable to most instruments and small-metals production

Heavy-duty machines:		
Drill presses	M and W	Proportion could be increased.
Punch presses	M and W	Do.
Milling machines	M and W	Do.
Metal polishing and grinding	M	Not suitable for women.
Turret lathes	M	With extensive training women could be used on lighter machines. Otherwise, probability slight.
Engine lathes	M	
Hand screw machines	M	
Automatic screw machines	M	
Gear cutters	M	
Secondary or light machines:		
Bench, watchmakers' lathes, etc. (turning, buffing, burnishing, burring, lapping, etc.)	M and W	Women employed quite generally and they could do more of light work.
Micromilling	M and W	
Sensitive drill press	M and W	
Small automatic screw	M	Slight probability without extensive training.
Hand and machine burring	M and W	Proportion could be increased.
Machine-shop inspection	M	Slight probability of employment.
Painting:		
Spray	M and W	Proportion could be increased.
Touch-up and brush	M and W	Women employed extensively.
Fill-in	M and W	Do.
Radium	W	
Graduating and engraving	M and W	Proportion could be increased.
Heat treating, plating, and anodizing	M	Not suitable for women.
Inspecting, cleaning, wrapping for stock and shipment.	M and W	Proportion could be increased.

ARTILLERY AMMUNITION AND COMPONENTS [3]

Women already are employed in Government arsenals and in parts manufacture at many operations, specifically as machine operators, assemblers, inspectors, packers, and so on. The new plants will offer many similar jobs. There will be wide opportunity of further expansion of women's employment in an expanding production, both on new jobs and as substitutes for male operatives if the need arises. Undoubtedly women can carry on well over half of the operations in the manufacture of artillery ammunition. The list following shows the possibilities of extended utilization of women in making artillery ammunition.

[3] See U. S. Women's Bureau Bulletin No. 192-2: Women's Employment in Artillery Ammunition Plants, Washington, 1942.

	Sex	Possible extension of women's employment
Metal components manufacturing:		
Toolmaking, adjusting, setting up machines, etc.	M	Not suitable for women.
Machine operations	M and W	Proportion could be increased.
Assembly	M and W	Do.
Inspection	M and W	Do.
Fuze assembly (including detonators, fuze primers, boosters, etc.):		
Machine operations	M and W	Women could be used almost entirely.
Assembly	M and W	Do.
Inspection	M and W	Do.
Loading	M and W	Do.
Packing	M and W	Do.
Propellant primers:		
Body and head machine operations.	M and W	Proportion could be increased.
Assembly of body and head	M and W	Do.
Loading (explosives operators)—		
Head	W	———
Body	M	Women could be used entirely.
Projectile manufacturing:		
Machine operations	M	Women could be substituted in part on lighter projectiles.
Inspection	M	Women could do 37-mm.
Painting	M	Do.
Packing	M	Do.
Cartridge-case manufacturing:		
Drawing, annealing, pickling, etc.	M	Not suitable for women.
Machine operations	M	Could be substituted in part.
Stamping identification	W	———
Inspection	M and W	Proportion could be increased.
Packing	M and W	No further extension possible.
Projectile loading:		
Melting, pouring, and compressing explosives.	M	Not suitable for women.
Drilling fuze cavity	M	Do.
Cleaning threads and miscellaneous light jobs.	M	Women could be substituted in part.
Case loading and assembly:		
Inserting primer	M	Women could do 37-mm. and 75-mm.
Weighing and pouring powder	M and W	Women could be used entirely.
Crimping case to projectile	M	Women could do 37-mm.
Miscellaneous machine operations	M	Women could be substituted in part.
Painting and stenciling	M and W	Proportion could be increased.
Packing	M and W	No further extension possible.
Inspection	M	Women could do 37-mm.

	Sex	Possible extension of women's employment
Bag loading:		
Bag sewing—		
Cutting and trimming	M	Women could be used entirely.
Power-machine operating	W	———
Smokeless-powder bag loading—		
Weighing and loading	W	———
Sewing loaded bag	W	———
Black-powder bag loading—		
Weighing and loading	M	Not suitable for women if hopper must be filled.
Sewing loaded bag	W	———
Putteeing propellant charges	M	Not suitable for women.
Inspection	M and W	Proportion could be increased.
Packing	M and W	Do.
Explosives manufacturing:		
Smokeless powder	M	Not suitable for women.
Black powder	M	Do.
TNT, amatol, etc	M	Do.
Black powder pellets	M	Women could be used entirely.
Tetryl pellets	M	Do.

SMALL-ARMS AMMUNITION [4]

Since the small-arms ammunition industry has a small product which is standardized as to operations and machining and which requires considerable care and attention to detail, women have been used extensively, and as the new plants get into production many more women will be employed in this branch of the defense program. In the Government arsenal at Frankford approximately 40 percent of the productive workers in 1941 were women, and as the dilution of labor increases, women undoubtedly will constitute a considerably larger proportion.

Women comprise a much larger proportion of the munition makers abroad than in the United States. Possibilities of extended utilization of women for such work are summarized in the following.

Bullet manufacturing:	Sex	Possible extension of women's employment
Bullet jacket:		
Drawing (several draws)	M	Women could be substituted in part for men.
Annealing, pickling, and washing.	M	Not suitable for women.
Trimming	M and W	Proportion could be increased.
Bullet point or core—		
Melt and ingot molding	M	Not suitable for women.
Extruding and forming	M	Do.
Washing and drying	M	Do.
Bullet assembly	M and W	Women could be used entirely.
Tracer-bullet charging	M and W	Proportion could be increased.

[4] See Women's Bureau Bulletin No. 189–2: Employment of Women in the Manufacture of Small Arms Ammunition.

	Sex	Possible extension of women's employment
Case manufacturing:		
Drawing (several draws)	M	Not suitable for women.
Annealing, pickling, and washing.	M	Do.
Polishing	M	Do.
Pumping, pocketing, and heading.	M	Do.
Trimming	W	———
Head turning	M and W	Women could be used entirely.
Body and mouth annealing	M and W	Do.
Tapering	W	———
Chamfering	M	Not suitable for women.
Primer inserting	W	———
Primer:		
Blanking and forming cup and anvil.	M	Women could be substituted in part for men.
Shellacking strips for foiling	W	———
Pellet forming	M	Women could be substituted for men.
Foil and knock out	W	———
Inserting of anvil	W	———
Press anvils into primer cup	M	Women could be substituted for men.
Primer inverting	W	———

Counseling of Employers

The widespread attention given since December 7, 1941, to the calling of women as a practical source of new labor supply has constantly increased the number of calls on the Women's Bureau from individual employers requesting advice as to the occupations and the conditions of work found successful for the employment of women. As far as is possible with a limited staff, these calls are met by personal visits to the plants by industrial experts familiar with the manufacturing processes and equipment. Other requests are met by letters giving detailed information. Groups asking for experienced advice are reached by addresses made by staff members to managerial associations, safety engineers, personnel directors, and so forth. Furthermore, in order that the Bureau's accumulating knowledge not only of the potential occupations of women but of their actual efficiency in such occupations may be made to reach the largest possible number of employers, as well as the many officials engaged in recruiting women and in forming training classes, the Bureau prepares for distribution mimeographed reports on industries.

Many companies primarily engaged in making war implements, or converting their operations to war work, must have the assistance of an agency whose personnel is experienced in advising as to the needs of a woman labor force. Such requests have come to the Women's Bureau from engineering firms and arsenals and from companies producing machine tools, sheet metal, ordnance, optical goods, locomotives, iron and steel products, copper and brass products, ammunition, electrical supplies, cement, chemical products, petroleum, glass products, aircraft, automobiles, and food products.

Plant managers, superintendents, training supervisors, personnel directors, medical advisers, and others pose all sorts of questions to the Women's Bureau. Typical is the statement of a personnel director of a machine company expected in the near future to hire some

women for factory work: "Before planning, we need some specific information." Or of a woman supervisor who says: "In heading up a women's program for our company, I am anxious to secure all pertinent materials." Included in types of information asked for by such plant officials are data on the following: The kinds of jobs women can do best; the extent to which they can handle the heavier work; methods and necessary time for training and upgrading woman workers; measures of women's skill; general health conditions for woman workers and their characteristic medical needs; proper methods of seating for correct posture; safety requirements as to headgear, shoes, and uniforms; laws and regulations as to women's work; wage standards for newly developed jobs for women; preventive measures in use of industrial poisons, causes and care of dermatitis, and other health hazards. And these employers have many more needs that the Women's Bureau has to meet.

Conditions of Employment

Plant management is desirous of obtaining information not only as to occupations suited to women but as to the physical requirements designed to spell efficiency in the use of a woman labor force, such as desirable arrangements of work shifts, advantageous rest periods, suitable and safe work apparel, healthful seating, adequate service facilities, and personnel requirements. To cover such matters, concerning general standards and policies to be observed, the Bureau is issuing a series of pamphlets that summarize some of the best data on subjects about which employers are asking. Already published are:

Hazards to Women Employed in War Plants on Abrasive Wheel Jobs.

Night Work for Women and Shift Rotation in War Plants.

Women's Effective War Work Requires Time for Meals and Rest.

Washing and Toilet Facilities for Woman War Workers.

Safety Clothing for Women in Industry.

Lifting Heavy Weights in Defense Industries.

These are done in such easily readable fashion that some firms have ordered them in 5,000 lots for distribution to workers. In preparation are similar pamphlets on seating, and on dermatitis. The Bureau also has prepared material requested by the War Department, to be incorporated as the section on working conditions of its health and safety manual, for the use of plant supervisors.

Many complaints have reached the Bureau from workers, in respect to conditions in plants that had always employed women but have speeded up or expanded because of war contracts. To secure a factual understanding of such difficulties, some 700 woman workers were called upon in their homes. The relationship of conditions of work to morale of woman workers was clearly discernible. The plants in which these women worked also were visited, and wherever possible needed changes were discussed with management. These personal interviews are being followed up with letters containing pertinent material for the use of the employers. That such a method achieves results may be judged from the answers received, excerpts from which follow:

> We are happy to report that most of the things complained about [by employees] have been corrected. We are taking immediate steps to correct the remainder.

Mrs. ——— gave us several very constructive suggestions and it has been a pleasure on our part to have followed these instructions. We believe another visit will find a marked improvement in the handling of the matters brought to our attention.

You may be sure we are correcting the crowded toilet conditions to which you refer, as rapidly as possible.

Some of the comments of woman workers are worthy of summarizing here, as they indicate attitudes that result in plant problems and have a definite effect in lessening production:

Wages.—Older employees resent the fact that they worked without increases in pay for years and now new employees earn as much as they do.

A feeling existed that machine operators should receive more than bench workers because work is harder.

Confusion and lack of understanding was expressed about the system for wage increases.

Absenteeism.—When the plants work 7 days a week very few women on the third shift report for work Saturday night. Now, when they have Saturday nights off, few will work Sunday night.

Many of the women employed have home responsibilities and must have time off to do their housework.

Young girls take time off to shop around to find the job they like best.

Absenteeism may be caused partly by lack of interest in the job and a feeling that it is not very important. Where an absence report is required of each person when she returns to work, it is customary for the women to state that their absences are due to illnesses regardless of the cause. [The latter statement checks with the very limited amount of illness reported by woman workers to Bureau agents.]

General conditions in plant.—Present arrangement of eating at machine, in toilet rooms, or in automobiles is not satisfactory.

Employees would like to be able to get hot coffee in plant.

Toilets in old building are not clean and are not adequate in number but are overcrowded.

The washroom is not available for half an hour before leaving. [This seemed most annoying to workers traveling long distances in public conveyances.]

Since it is frequently cold in workrooms in old building, girls must either smuggle coats into the room or go through a lot of red tape to get permission to get their coats.

Thermos bottles have been opened for inspection when brought into the building. Heat is lost.

[There is much evidence of need for interpretation of firm policies, and for a personnel manager to whom complaints can be made and who will allay rumors and exaggerated notions.]

Wage Rates in Occupations of Women and Men in War Industries

The speed with which women are employed, as well as their spread over the occupational field, changes in direct relation to the availability of male labor in each area. Today, in one plant men are working on jobs that women are doing in another plant having similar production, and in more and more cases men and women are working side by side on the same work in the same plant. In such situations, many wage-rate problems arise, calling for new scales both in union agreements and in nonunion plants. At the urgent request of woman workers, the Women's Bureau has held many conferences with trade-union officials concerning the subject. The result has been that the United Electrical, Radio and Machine Workers of America and the United Automobile, Aircraft and Agricultural Implement Workers of America have agreed that woman workers shall receive the same wages as men when they perform the same operations, and such a clause becomes a part of new local contracts.

This subject has been included in several cases before the National War Labor Board. In order to outline sharply the present situation for the Board's attention, the Women's Bureau made a detailed job analysis of the work done by women and men in several gun plants, and presented a factual statement concerning the work done by women and men and the wage rates paid on various processes. Time and again the maximum rate paid to women on comparable operations was lower than the minimum rate paid to men working on the same machine and same part. Such differences in wage rates cause much unrest among both man and woman workers. The National War Labor Board in its directive order in the case of the General Motors Corporation and the United Automobile, Aircraft and Agricultural Implement Workers of America stated:

> Wage rates for women shall be set in accordance with the principle of equal pay for comparable quantity and quality of work on comparable operations.
>
> Any dispute arising as to the question of quality, quantity, or comparability, as herein defined, shall be subject to final determination by an arbitrator appointed by the National War Labor Board; provided, however that any such dispute which involves an alleged violation of a local wage agreement shall be settled within the procedural framework of the grievance provision in the agreement.

To assist both employers and union officials, and in response to repeated requests, the Women's Bureau has prepared a bulletin giving information on various aspects of the subject of women's wage rates, showing official Government support of the "equal pay" principle, and inclusion of clauses to this effect in union agreements, and summarizing experience as to related subjects, such as standards of women's output, their special skill in the light industrial processes now so widely demanded in the manufacture of war necessities, and so forth. The Women's Bureau outlines the following as a general standard recommended in fixing women's wages in plants manufacturing war products:

> 1. If the job or operation is a new one, the rate should be fixed according to the job, and regardless of whether a man or a woman is to perform it.
>
> 2. If a woman is placed on a job formerly done by a man, or on a type of job customarily done by a man, she should receive the identical rate paid the man. Managements sometimes make slight changes for the purpose of improving the process, and such changes cannot be taken as a valid basis for paying a lower wage rate to women.

The largest numbers of women are and will continue to be employed in nonwar industries and services. With increased living costs, with a much higher wage standard in war-implement industries, discontent and restlessness ensue among such workers, who are essential for civilian life. Less than a third of woman workers are organized in trade-unions. For many millions of women who are not organized, legal minimum-wage rates have afforded the only means of eliminating substandard wage rates. The fixing of legal minimum-wage rates by States was essential to insure payment of a fair living wage to workers in service industries not covered by the Fair Labor Standards Act. Up to the time the President established the Office of Economic Stabilization, the Women's Bureau had been advising State authorities as to the types of legal regulations that have proved most effective in correcting injurious conditions of employment during the war period.

The Bureau also renders technical assistance on all phases of minimum-wage legislation, administration, and enforcement. This technical assistance reaches through all stages of minimum-wage activity.

For example, where a State agency desires to issue new wage orders, the Bureau cooperates in the preliminary survey of the cost of living of employed women in the State, and prepares draft wage orders to assist wage boards, incorporating standards found to be desirable by experience. Or, where a State finds it advisable to revise a wage order or one of its provisions, to meet a specific enforcement problem, the Bureau's experts suggest methods and wording; they also constantly advise with all States on enforcement methods and techniques, and in this way are able to give each State the benefit of the methods and experience of other States.

The authority vested in the National War Labor Board to approve wage increases calls for a new form of assistance by the Bureau to the 26 States having minimum-wage legislation, which may wish to increase their issuance of new wage orders or revise present orders by bringing them in line with the rising cost of living.

Labor Laws and Regulations Affecting Women's Work

Immediately after the Pearl Harbor attack the War Department called on the Women's Bureau to make investigations as to the operation of certain labor regulations in the employment of women in war-implement factories. This situation was surveyed through visits to plants having large war contracts in several major industrial States. Subsequently, the Bureau participated in joint conferences of State labor commissioners and the War and Navy Departments for the preparation of acceptable basic labor standards for woman employment in plants having war contracts.

These agencies at that time designated sound labor standards as "the mechanisms of efficiency," and stated that "industrial history proves that reasonable hours, fair working conditions, and a proper wage scale are essential to high production." Subsequently, very few States found modifications of law necessary to make it possible to meet production schedules, and most of these few made only very minor changes. The Women's Bureau endorses the policy that authority to grant temporary modifications of existing laws be lodged in State labor departments and that the following procedure be observed when the quantity of temporary exemptions makes it necessary.

Each employer seeking temporary exemption from State labor laws to be required to file an application with the labor commissioner.

Each application to be thoroughly investigated by the labor commissioner to determine whether the need for such an exemption actually exists.

No permit granting an exemption to be issued to an employer who can maintain labor standards by using available labor supply, or by making adjustments in the organization of his plant.

No permit to be issued, even though trained workers are lacking, unless the employer makes satisfactory arrangements to train or to secure trained workers within a reasonable time.

No exemptions to be granted to employers not engaged in war work.

No permit to be issued if the health and welfare of the workers would be endangered thereby.

Permits to be limited to individual plants and for specified periods of time and to be revoked when exemptions are found to be unnecessary to maintain maximum war production.

In the ensuing months the Women's Bureau has observed the effect of these recommendations through plant investigations within several States, and is continually cooperating with State labor departments,

as well as with the employers, in the alleviation of conditions of women's work so unsatisfactory as to affect their health and output.

Studies are being and will continue to be made of the effects of the administration of existing legislation on the well-being of woman workers. For example, a study is about to be undertaken to determine whether benefit-payment policies of State unemployment compensation commissions are forcing women to work longer than they should immediately before childbirth, or to return to work too soon afterward, or to accept night work and other injurious job conditions whether or not they are physically fitted for them. This has been especially important at the present time because of the increasing employment of married women and the increasing birth rate.

Community Facilities in Industrial Areas

Plants manufacturing or handling explosives have been located in rural areas. The Women's Bureau has made special investigation in 17 of these areas concerning the adequacy of housing, food, recreational, and other facilities for working women. Since most of these plants have been quite recently constructed, accommodations frequently were inadequate. Following such investigations, recommendations were made to the National Housing Authority concerning the housing needs of the community. Numerous conferences with assistants in that agency have been held, to the end that better housing arrangements are under way. Many conferences were held with representatives of the Office of Defense Health and Welfare Services both in the field and at headquarters. Copies of the Women's Bureau community-survey reports have been sent at their request to each of their regional directors, and every effort has been made to bring about the necessary changes in eating and recreational facilities.

As an example of results obtained, action is now being taken to provide recreational leadership and facilities for Elkton, Md., a community in which nothing had been provided for women even though their influx for work in two munition plants called for building of dormitories. In addition to the foregoing, crowded industrial areas in Connecticut to which women are migrating also have been studied. Recommendations as to housing and recreation needs will be forwarded to the proper administrative agency.

Requests from many communities made it evident that administrative agencies needed a statement of guiding principles. The Women's Bureau responded with the preparation of a small bulletin outlining the best acceptable standards for the housing, transportation, and recreation of woman war workers. In connection with the housing of woman war workers, for example, the Women's Bureau, following its investigations of communities and its conferences with other authorities in this field, recommends the following:

All types of housing for woman war workers should conform to standards essential for safety, security, health, decency, adequacy, privacy, cleanliness, and comfort.

Living quarters should be conveniently located in regard to workplaces and recreation facilities, and be in pleasant surroundings.

Room rent should not exceed 20 percent of a woman's income.

Safeguards should be set up in every community to control rents and to prevent other dangers from hit-or-miss room finding.

Single rooms are preferable, or double rooms with not more than two women, each with her own bed.

Rooms (whether in private homes, boarding or lodging houses, dormitories, etc.) should be adequately furnished (including a closet with lock or a locker preferably for eaeh occupant) and should be properly heated, ventilated, and lighted.

Bathing facilities and toilets should be modern and in good repair, arranged to give necessary privacy, conveniently located and sufficient in number (in the ratio of a modern bath, or shower, and toilet for every 5 to 7 persons; a washbasin to every 4, unless there is running water in the bedroom, then 1 for every 7).

A place on the premises for entertaining guests outside the bedroom should be available.

Eating facilities of proper kind should be conveniently located, with satisfactory inexpensive meals.

Especially for rural areas, the Bureau recommends the cooperation of local women's groups in making available satisfactory living places, and, in cases where the need develops, improved types of housing projects for women. Especially for large cities, the Bureau recommends that an organized room-registration service of a satisfactory type be created and that, where necessary, special dormitories for women be built.

Agricultural Woman Workers

The transfer of vast numbers of agricultural workers to the war industries, as well as the rapid induction of others into the armed forces, has resulted in a growing demand for the employment of women in agricultural work. In the next few years, much of the work of harvesting and picking heretofore performed by migratory labor in the many local communities will have to be carried on by women. Further, women will be needed in increasing numbers not only for their traditional work of packing and canning, but also for nearly all types of regular farm work. On April 1, 1942, there were 1,328,000 woman farm workers in the United States. The anticipated employment of women in large numbers in agriculture creates many new employment problems. In interesting women in such work, the Bureau is cooperating with other Government agencies primarily concerned. In addition, the Bureau performs a function not carried on by any other agency, namely, that of formulating and helping put into practice standards for women's employment. These standards are incorporated in a bulletin entitled "Guides for Wartime Use of Women on Farms."

Women's Bureau, A Center of Information on Women's Work

In a situation changing as rapidly as is the situation with respect to the employment of women, there is need for a center for dynamic technical information and expert advice on the widest variety of subjects connected with women's work—the types of work women do best or can do, the effects of industrial and economic changes on their employment, and the conditions found satisfactory for their continued performance. The Women's Bureau is such a center and has available the records of the most useful experience accumulated through years of knowledge of women's industrial activity.

This also includes close contacts with current and developing situations in Great Britain, Canada, Latin America, and other parts of the world. Bureau representatives have visited Canadian war-implement plants and have become fully acquainted with the part women are playing there in the manufacture, for example, of guns and rifles.

Staff members of the Women's Bureau have conferred personally with the leading advisers and experts on women's work in England, such as Caroline Haslett and Margaret Bondfield; regular exchanges of information between this Bureau and these officials are maintained. In these countries, longer in the war than the United States, many valuable details are being gleaned as to technical woman-power problems that are beginning to face this country.

U. S. GOVERNMENT PRINTING OFFICE: 1943

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Serial No. R. 1479

[From the MONTHLY LABOR REVIEW (September 1942) of the Bureau of Labor Statistics, United States Department of Labor]

EMPLOYMENT OF WOMEN IN WARTIME

CONSIDERING the entire labor force of the United States, the employment of women has been increasing at a faster rate than that of men. The WPA Monthly Report of Employment and Unemployment indicates that during the year ending with May 1942 the number of women employed rose by 1,700,000, whereas for men the corresponding figure was 1,400,000. When the manufacturing industries only are considered, the reverse is true. Thus, data collected by the Bureau of Labor Statistics show that in the year ending in April 1942, although nearly 200,000 additional women had been employed, this represented an increase of only 8 percent as compared with 12 percent for men. The situation in individual manufacturing industries varied considerably. In the metal-working industries there was practically no change over the 3-year period from 1939 to 1942. In these industries women constituted a much smaller proportion of the total working force than was shown by manufacturing generally; in May 1942 they formed about 13 percent of the total number employed.

Women in Manufacturing Industries, April 1942 [1]

Of the 10,744,000 wage earners employed in private manufacturing establishments in the United States in April 1942, approximately 2,400,000, or 22 percent, were women. This proportion was slightly lower than it was a year earlier, despite an increase of nearly 200,000 woman wage earners [2] between April 1941 and April 1942. The slight decline in the proportion of woman workers reflects the fact that the number of male factory wage earners increased by almost 12 percent over the year period as compared with a corresponding increase of only 8 percent among the women (see table 1).

TABLE 1.—*Estimated Employment of Factory Wage Earners, by Sex, April 1941 and April 1942*

[In thousands]

Item	April 1941				April 1942				Percent of increase, April 1941 to April 1942		
	Total	Men	Women	Percent of women	Total	Men	Women	Percent of women	Total	Men	Women
Total manufacturing	9,677.6	7,476.4	2,201.2	22.7	10,744.5	8,364.5	2,380.0	22.2	11.0	11.9	8.1
Durable goods	4,917.2	4,513.5	403.7	8.2	5,771.8	5,300.8	471.0	8.2	17.4	17.4	16.7
Nondurable goods	4,760.4	2,962.9	1,797.5	37.8	4,972.7	3,063.7	1,909.0	38.4	4.5	3.4	6.2

The above estimates by the Bureau of Labor Statistics are based on reports from approximately 22,000 identical establishments employing 4,800,000 wage earners in April 1942.[3]

[1] Prepared in the Employment and Occupational Outlook Branch, Bureau of Labor Statistics.

[2] Including approximately 20,000 woman workers in war industries not covered by the Bureau's present manufacturing industry classifications.

[3] The estimates are subject to change since the entire series of employment indexes is now in the process of complete adjustment and revision. More detailed information will be made available at a later date.

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Although the greater part of the expansion in manufacturing employment between April 1941 and April 1942 took place in the durable-goods industries, almost two-thirds of the increase among woman workers occurred in plants manufacturing nondurable goods. This was to be expected since the great majority of woman factory wage earners are employed in nondurable-goods industries. However, it is also indicative of the shift of men from the nondurable industries to many of the higher-paid war industries which account for the greater part of the durable-goods employees. The jobs of these men are being filled by women, who can be trained readily to perform many of the operations. Some operations are being simplified to facilitate this replacement. The employment of women has undoubtedly continued to increase since April 1942, for many new war plants have started operations in rural areas where women form the largest available source of labor supply.

The increase in employment among women was general throughout most of the nondurable-goods industries, with a pronounced increase in the chemicals group (table 2). Among the durable-goods industries large relative increases occurred in the machinery, transportation (except automobile), and lumber industries.

TABLE 2.—*Employment of Woman Wage Earners in Selected Manufacturing Groups*

Industry group	Number of women per 1,000 employed wage earners—		Percent of change in total number of women employed, April 1941 to April 1942
	April 1941	April 1942	
Iron and steel	68	68	+6.7
Machinery (except electrical)	42	46	+37.0
Electrical machinery	266	276	+28.4
Transportation equipment	10	25	+555.5
Automobiles	77	87	−28.1
Lumber	16	21	+32.8
Textiles	548	562	+3.5
Leather	403	414	+5.3
Food	223	224	+7.9
Chemicals and petroleum	102	137	+56.6

WOMEN IN METALWORKING AND MACHINERY INDUSTRIES, MAY 1942

Additional information concerning the employment of women in industry is available from a survey of employment in metalworking and machinery plants. This survey, which covered 6,171 plants in 108 industries [4] employing approximately 2,900,000 wage earners, was conducted in May 1942 by the Bureau of Labor Statistics at the request of the War Production Board.

Although 75 of the 108 industries surveyed showed increases in the proportion of women employed (table 3), the proportion (13 percent) for the group as a whole was virtually the same in May 1942 as it was in October 1939.[5] There were downward shifts in only 28 of the industries, but among these were automobile, radio, and other industries employing very large numbers of wage earners. Both the up-

[4] Wage earners in the shipbuilding industry were not included in the survey. In May 1942, women accounted for 0.4 percent of the wage earners in this industry.

[5] Interpretation of these comparisons must be made in the light of the fact that the 1939 figures were based on a complete census of the various industries whereas the 1942 figures were based on a sample which, although extensive, did not represent complete coverage.

ward and downward shifts in the proportion of women were generally very small.

As a group, the metalworking and machinery plants employed a much lower proportion of women than did manufacturing plants in general. In October 1939, 13 percent of the workers in the selected metalworking and machinery industries were women, whereas in all manufacturing industries combined, women formed 25 percent of the total. The great majority of woman wage earners were in food, tobacco, textile, and clothing factories. In 85 of the 108 metalworking and machinery industries, fewer than 25 percent of the wage earners were women.

The employment pattern for the 108 industries was dominated by plants which generally employ relatively few women. In the pre-war period these plants produced automobiles, locomotives, railroad and street cars, aircraft, tractors, castings, electrical generating and distribution apparatus, steam and internal-combustion engines, and similar heavy goods.

The machinery or metalworking industries that do employ relatively large numbers of women are those which in peacetime made small articles such as clocks and watches, collapsible tubes for toothpaste and similar substances, electric lamps, radios and phonographs, pens and mechanical pencils, needles and fasteners, communication equipment, and equipment for dental offices and barber and beauty shops. These industries, however, accounted for a comparatively small fraction of all wage earners in the selected industries.

The industrial classification used in table 3 refers to the normal output of the plants. By May 1942 the War Production Board had issued orders limiting or stopping production of goods customarily manufactured in many of these plants. Consequently, large proportions of the workers in May 1942 were employed by plants which were producing some type of ordnance (such as guns and ammunition and parts, sighting and fire-control apparatus, tanks and parts, and aircraft parts) as well as other war materials and supplies.

The conversion to war production had resulted in no definite trend toward relatively greater employment of women by May 1942. Examples of both increases and reductions in the proportion of women can be cited. Rapid expansion of the aircraft industry increased relative numbers of woman workers from 1 percent of the total in 1939 to nearly 7 percent by May 1942. Plants customarily making vending and coin-operated machines reported a substantially larger proportion of women in May 1942 than in 1939, and the increase was wholly in those plants which were doing ordnance work. Similarly, plants formerly manufacturing domestic laundry equipment reported relatively more women throughout the industry, but again the principal gains were in plants producing ordnance. On the other hand, in the miscellaneous electrical-products and communication-equipment industries, proportionately fewer women were employed in plants with ordnance work than in those without, with the result that the proportions of women throughout these industries were reduced.

Such decreases in the use of women may be only temporary, during the period when large numbers of skilled mechanics were adapting equipment designed for producing civilian supplies to war production. After conversion is complete, it is possible that a higher proportion of woman operatives will be making war materials than were formerly engaged in peacetime production.

TABLE 3.—*Employment of Women in Selected Manufacturing Industries, May 1942*

Industry	Number of plants reporting [1]	Number of wage earners		Percent of females	
		Total	Female	May 1942	October 1939 [2]
Iron and steel and their products, except machinery:					
Automobile stampings	35	7,138	1,053	14.8	18.8
Bolts, nuts, washers, and rivets	69	16,518	2,624	15.9	13.7
Cast-iron pipe and fittings	58	20,101	94	.5	.2
Cutlery	72	13,452	3,304	24.6	27.7
Doors, window sash, frames, molding and trim	44	7,176	155	2.2	.6
Enameled-iron sanitary ware and other plumbers' supplies	98	21,375	1,510	7.1	5.5
Fabricated structural and ornamental metal work	202	31,954	43	.1	.1
Files	6	3,912	475	12.1	9.2
Firearms	15	(3)	(3)	7.4	4.8
Forgings, iron and steel	90	27,599	173	.6	.3
Gray-iron and semisteel castings	284	50,134	799	1.6	.6
Hardware not elsewhere classified	147	36,142	9,368	25.9	23.1
Heating and cooking apparatus (except electric) not elsewhere classified	28	3,196	199	6.2	3.7
Malleable-iron castings	63	26,812	885	3.3	3.8
Nails, spikes, etc	14	2,147	575	26.8	24.5
Oil burners, domestic and industrial	16	2,041	29	1.4	.8
Power boilers and associated products	110	27,489	7	(4)	(4)
Safes and vaults	4	2,993	21	.7	.4
Saws	15	6,298	442	7.0	4.6
Screw-machine products and wood screws	149	33,691	6,712	19.9	11.7
Springs, steel (except wire)	22	3,405	158	4.6	.9
Stamped and pressed metal products	184	31,186	8,429	27.0	24.1
Steam and hot-water heating apparatus	28	5,959	41	.7	.1
Steam fittings	78	35,546	2,805	7.9	8.6
Steel barrels, kegs, and drums	33	6,737	668	9.9	11.0
Steel castings	132	69,826	83	.1	.1
Stoves, ranges, water heaters, and hot-air furnaces	161	31,541	2,490	7.9	3.2
Tin cans and tinware not elsewhere classified	147	33,926	10,452	30.8	28.4
Tools (except edge tools), machine tools, files, and saws	82	17,489	2,134	12.2	10.7
Vitreous-enameled products	42	12,119	3,285	27.1	24.2
Wire drawn from purchased rods	67	20,830	2,330	11.2	10.9
Wirework not elsewhere classified	130	20,688	4,794	23.2	22.1
Wrought pipes, welded and heavy riveted	26	15,998	248	1.6	4.7
Nonferrous metals and their products:					
Clocks, watches, and material and parts	24	19,415	9,919	51.1	47.7
Collapsible tubes	11	1,712	1,164	68.0	71.0
Jewelers' findings and materials	30	3,345	1,348	40.3	38.3
Jewelry (precious metals)	29	4,584	2,344	51.1	23.6
Lighting fixtures	83	14,967	3,517	23.5	25.7
Nonferrous-metal foundries (except aluminum)	135	(3)	(3)	2.1	.9
Nonferrous-metal products, not elsewhere classified	124	(3)	(3)	14.5	13.0
Sheet-metal work, not specifically classified	72	9,811	725	7.4	1.5
Silverware and plated ware	29	10,027	2,338	23.3	21.5
Watchcases	10	2,347	777	33.1	28.9
Electrical machinery:					
Automotive electrical equipment	19	(3)	(3)	27.9	30.1
Batteries, storage and primary (dry and wet)	46	(3)	(3)	21.8	17.9
Carbon products	8	(3)	(3)	29.1	13.8
Communication equipment	57	(3)	(3)	35.2	41.7
Electric lamps	20	(3)	(3)	74.6	77.3
Electrical appliances	55	(3)	(3)	29.3	27.9
Electrical measuring instruments	16	(3)	(3)	43.7	34.6
Electrical products not elsewhere classified	32	(3)	(3)	17.4	27.0
Generating, distribution, and industrial apparatus	192	(3)	(3)	16.5	18.6
Insulated wire and cable	37	(3)	(3)	25.4	30.7
Radios, radio tubes, and phonographs	102	72,840	33,393	45.8	54.2
Wiring devices and supplies	63	(3)	(3)	41.1	30.8
X-ray and therapeutic apparatus and electronic tubes	16	(3)	(3)	10.9	7.2
Machinery (except electrical):					
Agricultural machinery	107	39,959	1,250	3.1	1.3
Blowers, exhaust, and ventilating fans	15	3,648	103	2.8	.5
Cars and trucks, industrial	14	3,987	59	1.5	.6
Commercial laundry, dry-cleaning, and pressing machinery	17	4,177	53	1.3	1.7
Construction and similar machinery	107	36,206	153	.4	.2
Elevators, escalators, and conveyors	27	10,300	344	3.3	1.6
Food-products machinery	38	6,306	209	3.3	1.2
Industrial machinery not elsewhere classified	89	25,658	233	.9	1.0
Internal-combustion engines	46	(3)	(3)	3.6	2.8
Laundry equipment, domestic	16	3,976	611	15.4	4.3
Machine-shop products, not elsewhere classified	241	92,328	7,193	7.8	5.9
Machine-tool accessories	141	(3)	(3)	7.8	3.1
Measuring instruments, mechanical	29	5,016	486	9.7	9.6
Mechanical power-transmission equipment	68	53,034	8,857	16.7	12.5
Metalworking machinery and equipment not elsewhere classified	44	(3)	(3)	5.7	1.7

See footnotes at end of table.

TABLE 3.—*Employment of Women in Selected Manufacturing Industries, May 1942*—Continued

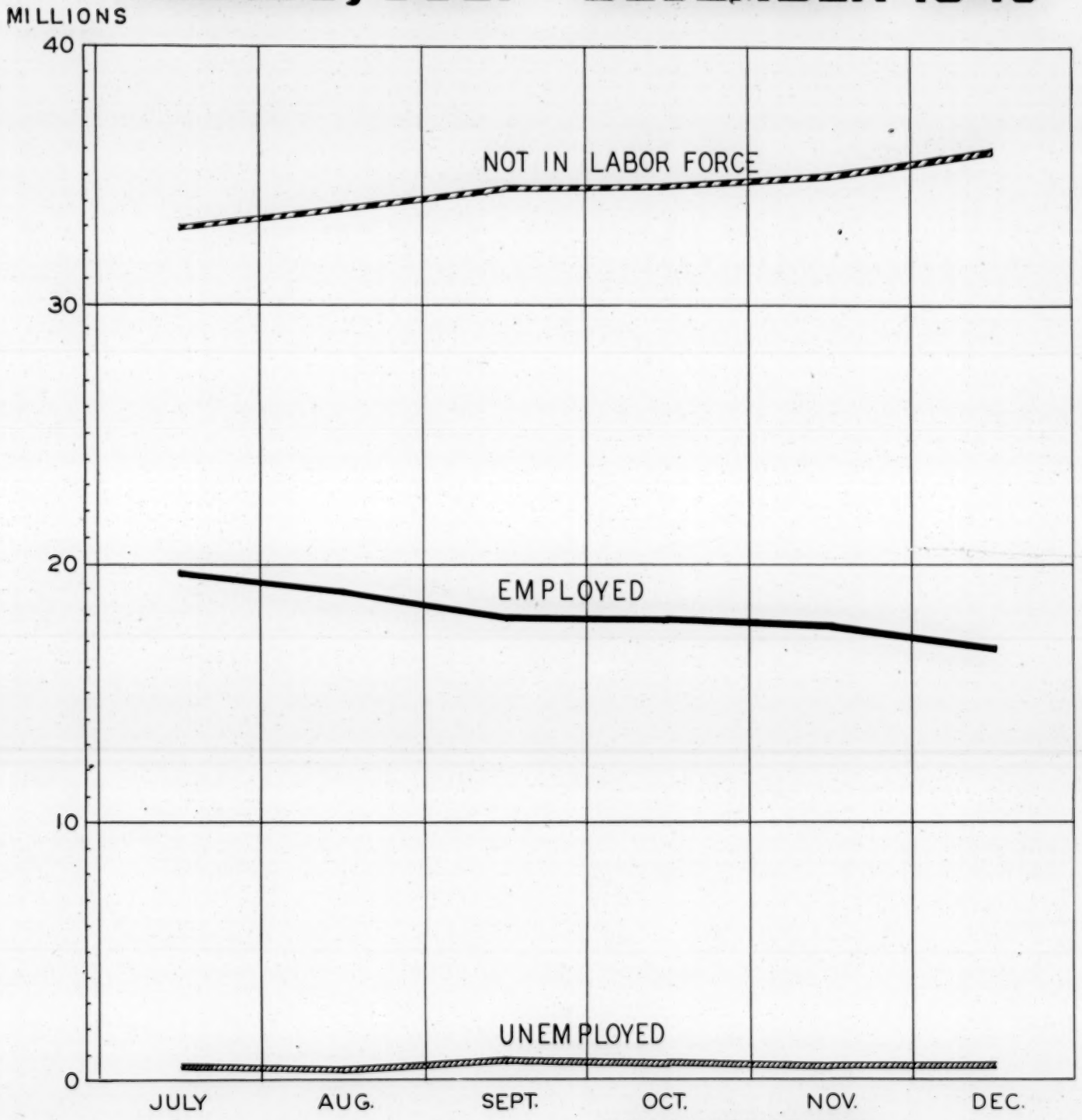
Industry	Number of plants reporting [1]	Number of wage earners		Percent of females	
		Total	Female	May 1942	October 1939 [2]
Machinery—Continued.					
Mining machinery and equipment	22	6,583	54	0.8	0.6
Office and store machines	47	37,830	9,026	23.9	23.9
Oil-field machinery and tools	56	12,804	371	2.9	.3
Paper-mill, pulp-mill, and paper-products machinery	34	6,748	4	.1	.1
Printing-trades machinery and equipment	24	11,107	586	5.3	3.8
Pumping equipment and pumps [5]	88	31,626	1,007	3.2	6.4
Refrigerators	81	36,505	2,278	6.2	8.5
Scales and balances	21	3,131	246	7.9	6.4
Sewing machines, domestic and industrial	8	12,766	2,489	19.5	12.0
Special industry machinery not elsewhere classified	47	10,190	181	1.8	.9
Steam engines, turbines, and water wheels	11	[3]	[3]	3.2	.7
Stokers, mechanical, domestic and industrial	9	3,351	94	2.8	0
Textile machinery	52	22,534	1,351	6.0	4.0
Tractors	19	41,288	134	.3	.7
Vending, amusement, and other coin-operated machines	9	2,362	430	18.2	10.6
Woodworking machinery	20	3,766	31	.8	1.0
Transportation equipment:					
Aircraft and parts, including aircraft engines	54	[3]	[3]	6.9	1.1
Airframes	35	[3]	[3]	8.2	[3]
Engines	15	[3]	[3]	3.7	[3]
Propellers	4	[3]	[3]	3.7	[3]
Cars and car equipment	25	[3]	[3]	.9	.5
Locomotives	12	[3]	[3]	.4	.8
Motorcycles, bicycles, and parts	20	7,621	770	10.1	9.7
Motor vehicles, motor-vehicle bodies, parts and accessories	318	435,552	23,086	5.3	6.6
Miscellaneous industries:					
Beauty-shop and barber-shop equipment	15	1,872	637	34.0	44.0
Children's vehicles	12	2,148	598	27.8	17.4
Dental equipment and supplies	15	4,112	1,135	27.6	41.8
Fabricated plastic products	20	7,609	2,391	31.4	26.5
Fire extinguishers, chemical	5	3,638	348	9.6	9.9
Musical instruments, parts and materials, not elsewhere classified	20	2,165	324	15.0	14.1
Needles, pins, hooks and eyes, and fasteners	23	8,034	3,753	46.7	49.3
Opthalmic goods, lenses and fittings	4	4,982	1,993	40.0	34.7
Optical instruments and lenses	11	3,360	831	24.7	18.4
Pens, mechanical pencils, and pen points	28	6,593	4,178	63.4	55.7
Photographic apparatus and materials	27	20,464	4,806	23.5	26.4
Pianos, organs, and parts	29	5,261	733	13.9	10.0
Professional and scientific instruments	44	33,418	6,006	18.0	14.5
Signs, advertising displays, and advertising novelties	31	4,474	1,243	27.8	21.9
Sporting and athletic goods not elsewhere classified	38	6,268	2,663	42.5	35.1
Surgical and medical instruments	12	2,073	612	29.5	20.2

[1] Plants with fewer than 25 wage earners in May are not included in the tabulation.
[2] Source: 1939 Census of Manufactures—Persons Employed in Manufacturing Establishments, by Sex, August 1941.
[3] Not available for publication.
[4] Less than 0.05 percent.
[5] In 1939 Census of Manufacturing Industries, called "Measuring and dispensing pumps, and pumping equipment and air compressors."

U. S. GOVERNMENT PRINTING OFFICE: 1942

WOMEN'S BUREAU

WOMEN IN AND NOT IN LABOR FORCE
TRENDS, JULY - DECEMBER 1945

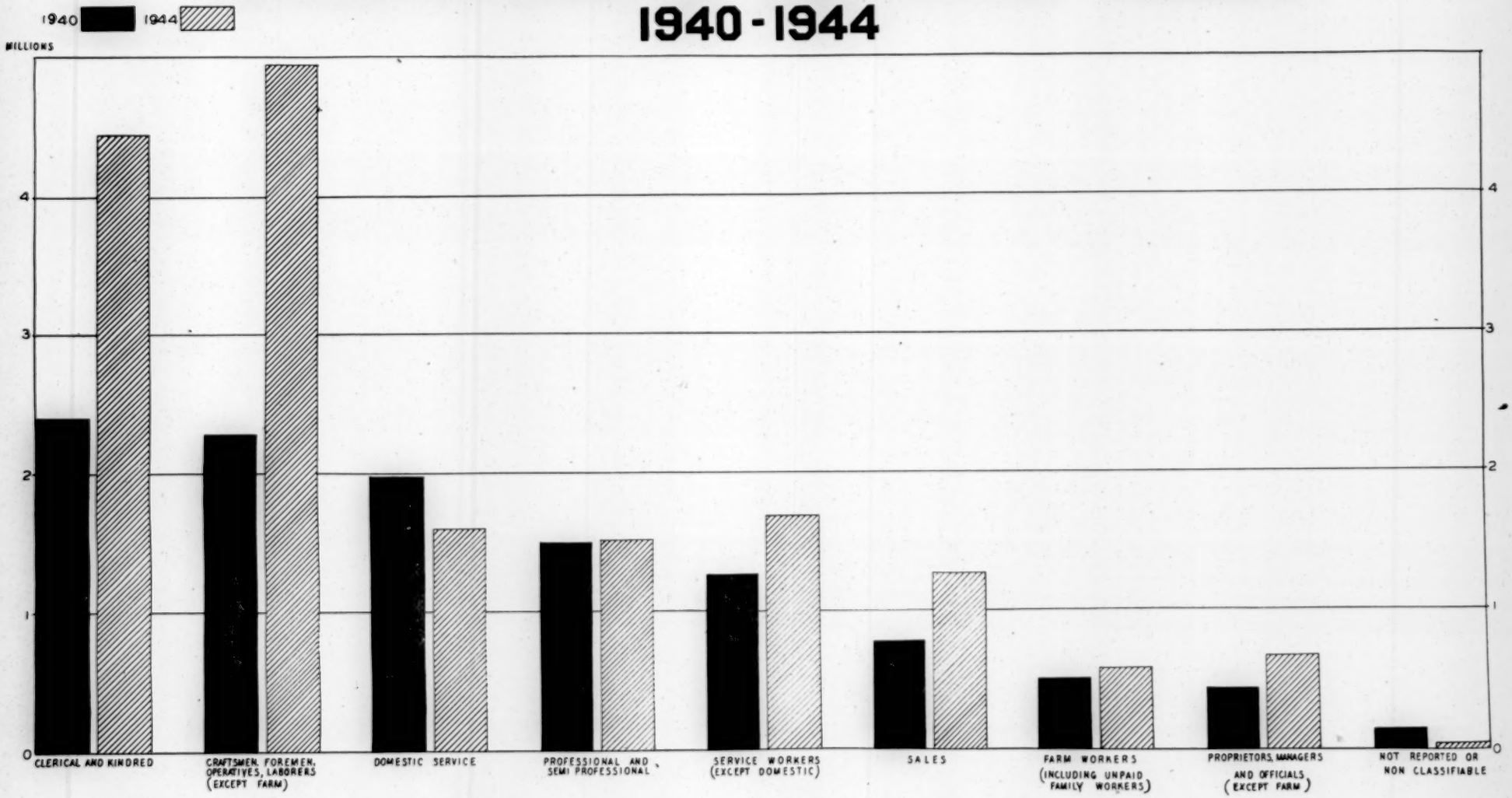


SOURCE: U. S. BUREAU OF THE CENSUS
MONTHLY REPORT OF THE LABOR FORCE

WOMEN'S BUREAU

OCCUPATIONS OF EMPLOYED WOMEN

1940 - 1944



Date?

Employment secured through consulting the following:

U. S. Employment office - both local and in nearest large city.
This is the Government agency in charge of recruiting and placing workers, and which has information on labor needs in surrounding areas.

Civil Service Commission district office.
Recruitment is still being carried on vigorously for various office positions in Washington, D.C. (and branch offices of Federal agencies). But War Department has frozen its staff for another month yet, and the Navy Department is temporarily forzen.

Application in person at all factories and establishments. This is always advisable. The Employment Service is not adequately staffed to carry on its regular work when special recruiting problems are being handled, and while applications are accepted they may be filed away because attention to that type of work is impossible at that particular time.

Many lines of work formerly done only by men are now being taken over by girls, and the chains or large companies in need of replacing men with girl s are doing their own recruiting without finding it necessary to call on the local Employment Service office. Cab drivers; truck drivers; tractor drivers; (International Harvester is training girls); gas station attendants; street car motormen; hotel positions such as bell captains, purchasing agents, mail clerks; office work of all kinds; dairy works; switch tenders, car tracers, dispatchers, telegraphers and ticket agents in whole country-wide transportation system (just developing); etc. In the largest woman-employing manufacturing industry - textiles - reports show women replacing men on many jobs.

Women Found to Be Hardest Hit In Cut-Backs on War Employment

2-26-44

Special to THE NEW YORK TIMES.

WASHINGTON, Feb. 25—Early surveys on cut-backs show that women, last to enter the labor market, are bearing the brunt of the cut-back with the least cushion of unemployment insurance.

This trend was noted by the Office of War Information in compiling a recent report on cut-backs. Reports there also showed that when lay-offs started, employers tended to stop hiring women.

The Department of Labor reported last week that December figures, newly compiled, revealed "the first month in which new hirings were significantly below separations." The high lay-off rate that month for the small-arms ammunition industry, reflecting cancellations of contracts, was 13.65 per 100 employes. In that industry, eighteen women per 100 have left the industry for reasons other than quittings as compared with twelve men, half again many more women as men.

The difficulties which women experience in cut-backs caused the Women's Advisory Committee of the War Manpower Commission to declare a set of principles which should be followed.

Sudden Plant Closing Cited

These included: Notice of planned cessation of work as far ahead as possible (a Lowell, Mass., ordnance plant, about 70 per cent of whose workers were women, quit in November without a day's notice); split-shift workers to be laid off first; voluntary resignations to be called for; other separations to be based on skill and seniority on job; dismissal pay based on length of service; planned transfers to other jobs in the locality; advice as to unemployment insurance rights.

In thus agreeing upon a dismissal-pay clause in its advisory platform, the Women's Advisory Committee of WMC endorsed a procedure which the President declared against in his last budget message and which the Baruch committee emitted from its report as not being in the province of government. The attitude of the Administration is that a broadening of the unemployment insurance system is the only equitable way of providing a cushion when cutbacks come.

However, the Social Security Board says that the peace-time Social Security system needs a swift streamlining if it is to prove of substantial service to the woman war production worker, who, by the way, does contribute her bit to the reserves. The main reason why she will not get benefits is that these are figured, not on the current year, but on the previous year's work—and she is likely to be new to the labor market. She also is required to have earned a certain amount to be eligible—some States say $100, some $250, some eight times the benefit rate for two weeks.

Warning on Leaving Jobs

For the woman who has been long in the labor market the greatest hazard is following a soldier husband around, and thus losing out between the laws of two States.

Arthur J. Altmeyer, chairman of the Social Security Board, who calls these matters more good arguments for a national rather than a State-by-State system of unemployment insurance, gave this example of what a move can do to a benefit:

A wife gave up a job to move with her husband to a distant State. When she applied for work in the new town and made a claim for her earned benefits she was disqualified for leaving "without good cause attributable to the employer." The State's supreme court decreed she had "voluntarily put distance between herself and the job." Her old position was offered her again, but she could not take it from a 1,500-mile distance, so they gave her a second disqualification on the ground that she had "refused to take suitable work."

Headquarters Army Service Forces
Washington 25, D. C.

(CP Memo. 88) 5 November 1943.

ASF CIVILIAN PERSONNEL MEMORANDUM No. 88

Subject: Standards governing employment of minors under 18 years of of age.*

1. Although the critical labor shortage in many areas of the Nation has made it desirable for Army Service Forces installations to employ minors under 18 years of age, the health and education preparation of the minors involved must be the paramount consideration in such employment regardless of need for labor. It is, furthermore, especially important that all agencies of the Federal Government employ minors under the best conditions possible. The following directions are, therefore, set forth as the Army Service Forces practice governing employment of minors under 18 years of age. All arrangements for employment of such workers will conform to this practice, and any arrangements now in conflict with it will be revised immediately.

2. a. Every effort will be made to avoid recruitment on a full-time basis of minors under 18 who have not finished high school training.

b. All recruitment and employment on a part-time basis of minors under 18 who are attending school will be conducted with the specific approval of the appropriate public school authorities and the U. S. Civil Service Commission or U. S. Employment Service. Such labor will be employed only where the Civil Service Commission or U. S. Employment Service has certified that adult labor is unavailable for the jobs in question.

c. Wages for minors under 18, whether such workers are employed on a full-time or a part-time basis, will be determined as for adults doing similar work. In Army Service Forces, such wages will be set either (1) in accordance with the Classification Act, or (2) in accordance with prevailing rates of pay through wage board procedure.

d. No person under 18 years of age will be employed for more than 8 hours a day, 48 hours a week, or 6 days a week, except as temporary deviations from the above standard may be necessary to meet a special emergency.

*This memorandum is in accordance with the principles set forth in the "Statement of Policies and Standards Governing the Non-Agricultural Employment of In-School Urban Youth under Eighteen Years of Age," issued jointly 3 September 1943, by the War Manpower Commission, U. S. Office of Education, and the Children's Bureau.

24-57589

e. Minors attending school will be given part-time appointments made in accordance with War Department Civilian Personnel Regulation 145.1, "Part-Time Employment," when applicable. All such employments will be limited to a term of less than 1 year. The weekly tour of duty for such employees will be fixed as a definite number of hours, and in no case will more hours be worked in a week.

f. The administration of the program for employment of youth under 18 will be a special responsibility of the personnel officer. This memorandum sets forth only basic points to be observed; the personnel officer will adopt any further standards which the local situation may require.

3. The following regulations will represent minimum standards to be observed in employing in-school youth. In many cases, individual adjustments will be necessary where maximum hours of work are too strenuous. In no case, however, will these standards be lowered or relaxed.

a. Daily hours of work will not exceed 4 on school days and 8 on Saturdays; the maximum work week will be 28 hours. Combined hours of school sessions and work will not exceed 9 a day. Transportation factors should be taken into account, hours of work being shortened where an unusually long period is taken up in going to and from work, so that the total hours spent in school, at work, and in transportation will not exceed 10 hours per day.

b. Evening employment in no case will extend after 10; the closing hour ordinarily should be earlier. There should be at least 9 night hours free from employment. Adequate provision for the safety and welfare of boys and girls who work on an evening shift should be made.

c. Work will not be performed on more than 6 days of the week.

4. a. No person under 16 years of age will be employed by an Army Service Forces installation.

b. A letter of parental consent to employment will be filed in the 201 file of each minor under 18 employed. An age certificate will also be required and filed in the 201 file. Such certificates are usually issued by local public school officials through cooperation with the Civil Service Commission or U. S. Employment Service.

c. Determination as to whether an occupation is suitable for minors under 18 will be made by the medical officer of the installation when requested by the personnel officer. The personnel officer will make a survey of occupations and in cooperation with the Civil Service Commission or U. S. Employment Service and the school authorities determine those for which students may be used. Such students will not be used for work

(1) Which interferes with their regular or adjusted school programs;

(2) In occupations declared hazardous under the child-labor provisions of the Fair Labor Standards Act for minors 16 and 17 years of age (As of 1 November 1943 six hazardous occupation orders have been issued by the Children's Bureau of the U. S. Department of Labor: (1) occupations in or about plants manufacturing explosives or articles containing explosive components; (2) the occupations of driver or helper on motor vehicles; (3) coal mining

operations; (4) logging and sawmill occupations; (5) occupations involved in the operation of power-driven wood-working machines; (6) occupations involving radio-active substances.);

(3) In occupations prohibited for minors under 18 by law of the state in which the installation is located;

(4) In general, in occupations which are in any way dangerous or unusually strenuous. (See: Advisory Standards "Which Jobs For Young Workers?", Children's Bureau, U. S. Department of Labor.)

Checking; shipping, where heavy lifting is not involved; clerical work; messenger service; small parts assembly, etc. are examples of occupations appropriate for such workers.

d. Where a number of students or other young workers are employed, the installation has the responsibility of providing a satisfactory health program to keep a constant check on the health of the employees, and of maintaining as healthful, safe working environment as possible. Special care should be taken to allow adequate rest and meal periods.

e. In addition to the foregoing standards, Army Service Forces installations will conform with the child-labor and school attendance laws of State governments having jurisdiction over the respective areas in which the installations are located.

(SPX 230.1402(29 Oct 43)SPGCC-MB-A)

By command of Lieutenant General SOMERVELL:

J. A. ULIO,
Major General,
Adjutant General.

24-57589

Woman Workers in Two Wars

By Mary Robinson, *U. S. Women's Bureau*

THE present war has revived an interest in the number of woman workers and their importance in the First World War. No exact comparison of the extent of women's employment in the two wars can be given, owing to lack of comprehensive data for 1917–18. However, it is known that there were over 8½ million woman workers at the time of the January 1920 decennial census—a little more than a year after the close of the war and after curtailment in war industries, general demobilization of the troops, and some leveling off of the emergency peak employment of women.

In view of the 18 million woman workers envisioned by authorities as a likely total to be attained in this country by July 1944, it seems safe to assume that the number of women in employment during the present war will be double that in the first, when the armistice was signed after 19 months of war with a total of over 4 million men under arms. Against this can be set the 9.3 million men in the armed forces in July 1943 (19 months after the present conflict began) and the anticipated number of 11.3 million if the war continues until July 1944.

In discussing the current employment of women, table 1, presenting the number and proportion of woman wage earners according to the decennial censuses from 1870 to 1940, serves as a helpful background, indicating the tide of women's employment in this highly industrialized country.

Table 1.—*Trend in Woman Labor Force, 1870 to 1940*

Year	Women in the labor force [1]		
	Number	Percent of all persons in the labor force	Percent of all women of working age
1870	1,836,288	14.7	13.1
1880	2,647,157	15.2	14.7
1890	4,005,532	17.2	17.4
1900	5,319,397	18.3	18.8
1910	7,444,787	19.9	21.5
1920	8,636,512	20.4	21.4
1930 [2]	10,752,116	22.0	22.0
1930 [3]	10,679,048	22.0	24.3
1940	12,845,259	24.3	25.4

[1] Gainfully occupied women 1870 to 1930, women in the labor force (employed, seeking work, or on public emergency work) in 1940. Figures before 1940 are for persons 10 years old and over; figures for 1940 are for persons 14 years old and over; both these age groups are shown for 1930. Data for 1890 to 1930 are corrected figures from the Census release "Age Composition of the Nation's Labor Force: 1890 to 1930," October 1938.
[2] 10 years old and over.
[3] 14 years old and over.

At the 1940 census—taken the last week in March, 2 months before the United States launched the defense program—there were not far from 13 million women in the labor force (including almost 2 million unemployed women seeking work), and these formed a little less than a fourth of the total labor force and a little more than a fourth of the woman population.

The data in table 2, taken from the month-by-month statistical estimates of the labor force prepared by the Bureau of the Census, reflect the effect on the Nation's womanpower of the increasing demands of war. It will be noted that whereas in June 1940 (immediately after the beginning of the defense program) women constituted only 23.5 percent of all persons employed, this proportion had risen to 31.3 percent 3 years later.

TABLE 2.—*Estimates of Civilian Woman Labor Force,*[1] *June 1940–43*

Month	Civilian woman labor force[2]		Employment						Unemployment	
			Total		Nonagricultural		Agricultural			
	Number (millions)	Percent of total labor force	Number (millions)	Percent of total employment	Number (millions)	Percent of total nonagricultural	Number (millions)	Percent of total agricultural	Number (millions)	Percent of total unemployment
June 1940	13.9	24.7	11.2	23.5	9.7	26.5	1.5	13.6	2.7	31.4
June 1941	13.9	24.7	11.9	23.7	10.4	26.5	1.5	13.8	2.0	33.3
June 1942	15.0	26.7	13.9	26.1	11.8	28.2	2.1	18.3	1.1	39.3
June 1943	17.3	31.7	16.7	31.3	14.4	34.7	2.3	19.3	.6	50.0
July 1943[3]	17.7	31.9	17.1	31.5	14.8	35.1	2.3	19.0	.6	50.0

[1] 14 years of age and over.
[2] Excludes persons in institutions.
[3] Latest data available.

In June 1940, it was estimated, there were 11.2 million employed women as against 2.7 million unemployed and seeking work.

During the months following, despite the speeding up of the production of defense materials, influenced to considerable degree by the Lend-Lease program, there was no appreciable advance in women's employment. In 9 of the 12 months from June 1940 through May 1941 the number of woman workers dropped even below the 11-million mark. In June 1941 the total climbed to 11.9 million. In this whole period, as well as in the next 6 months preceding the attack on Pearl Harbor, comparatively few women were hired by defense plants, primarily because of the large backlog of unemployed men on which the expanding munitions industries could draw—a total of 5.9 million in June 1940, which went up to 6.3 million by July, and in June 1941 had still not fallen below the 4-million level. Moreover, there was encountered in many quarters a definite discrimination against women as munitions workers, based on traditional prejudice and fear that they lacked mechanical ability despite their proved skills along such lines in the manufacture of armament in 1917–18. In January 1942, a month after the attack on Pearl Harbor, there were 11.9 million employed women, the same total as in the preceding June. The number of unemployed women, however, had dropped by 0.7 million, indicating the more-than-seasonal absorption of a substantial proportion of the new June workers as well as other woman job applicants. June totals are weighted with new young workers coming into the labor market for the first time or for vacation jobs.

After January 1942 came the sudden and rapid rise in women's employment. Compared to June 1940 there were 2.7 million more by June 1942, and 5.5 million more by June 1943 when the total number of employed women had soared to 16.7 million. This was a net

increase in the 3-year period, of 50 percent. Thus, with the sudden impact of war and its simultaneous speeding up of the draft and war-material production, barriers to women began to fall, in some quarters rapidly, in others only as an inevitable necessity. A few intransigents still maintain a hold-the-line policy against woman labor.

The significance of this 5.5-million increase in employed women is reduced considerably by two facts: (1) The women in agriculture in June 1943 constituted a larger proportion of all agricultural workers (19.3 percent) than in June 1940 (13.6 percent), and a large number of these farm workers are seasonal. For example, June 1943 showed a half million more women at work on farms than in May, and a million and a half more than in January. In nonagricultural employment the increase of women between the two Junes was 4.7 million. (2) The absorption as wage earners of some 2 million unemployed women into the ranks of the employed meant that the actual rise of women in the "labor force" from June 1940 to June 1943 was just 3.4 million. (In June 1940 there were 2.7 million jobless women, whereas the corresponding number for June 1943 was 0.6 million.) For men the 3-year period showed a net gain in employment of 0.3 million, or an increase of 0.8 percent. During these years, however, the taking up of the unemployment slack for men was most striking; the June 1940 total of 5.9 million jobless men had fallen to 0.6 million in June 1943.

What proportion of the 3.4-million increase among women in the labor force consists of homemakers who have sought employment for the duration it is impossible to say. According to a War Manpower Commission estimate, during 1942 half a million housewives joined the wage-earning ranks. All told, in June 1943, about a third of the woman population was employed—3 in 5 of the single women, 1 in 6 of the married, and 1 in 2 of the widowed, separated, and divorced women.

In any survey of the greater use of womanpower, as a result of the war, and of the scaling down in their employment with the coming of peace, account should be taken of the spectacular increase among women in the executive branch of the Federal Government, from a little over 186,000 at the end of June 1940 to nearly a million at the end of June 1943. The new recruits are almost entirely at work in the War and Navy Departments and new war agencies, and many of them will be dropped when the emergency is over.

In addition to women in the civilian labor force in June 1943 were the 36,121 nurses on duty with the armed forces and the 100,000 women who were WACs, WAVES, SPARS, Marines, and WAFS. The sizable number of woman Red Cross workers, though on duty with the military services, is included in the civilian labor force and not with the armed forces.

Because of the many uncertainties of war, forecasting for the next year as to further induction of women in the combined labor and armed forces is difficult. However, if by July 1944 the personnel of the armed forces is stepped up to the estimated 11.3 million (a 2-million increase over this past July), and the work force in the munitions industries is increased to a prospective 11.6 million employees (in accordance with the War Manpower Commission estimate), obviously many more women must be recruited. It is estimated that of the 2 million additional workers in munitions, 1.3 million will be women. Over 200,000 more women are wanted for the armed

forces by the Army and the Navy; and the need of the essential civilian industries for many additional women cannot be overlooked, as evidenced by the active recruitment campaign sponsored by the War Manpower Commission.

All indications are that the recruitment of the required number of women for each of these several main classifications will be much more difficult in the coming months than in the past, and that the patriotic motive will have to constitute the chief appeal.

Women's Employment in Manufacture of Munitions in Two Wars

There are striking parallels between the war of 1914–18 and the present one as regards the war industries and occupations giving employment to women.

WORLD WAR I

In the first years following the armistice, the Women's Bureau of the U. S. Department of Labor published several reports analyzing the position and achievements of women. Many of the statements in those bulletins read like pages from today's chronicles, though on a much smaller scale.

Women in steadily increasing numbers, then as now, entered fields which prior to the war had been regarded as men's exclusive province, while many other thousands of women carried on in the traditionally feminine food and fabric industries. Not only were the experienced women already in manufacturing at the outbreak of hostilities utilized largely for munitions making, but such groups as school teachers joined their ranks and large numbers of inexperienced women never before in the labor force were inducted into the work.

A list of 19 "war agent and implement industries" was drawn up to show how growing numbers of women were hired.[1] The most significant of these were iron and steel, lumber, transportation equipment, chemicals, metal and metal products, automobiles, electrical machinery and equipment, rubber goods, optical goods, and scientific and professional instruments.

As the months passed and the second draft drew off more and more men into combat services, the more urgent became the demand for woman labor. This was true in the vast majority of occupations that made definite contribution to the winning of the war—not only in manufacturing but in railway transportation, telegraph and telephone operation, farm work, and service trades.

> They operated the lathe, the miller, the drill, the planer, the grinder, and other machine tools; they became proficient in handing the file, the wrench, the hammer, and other hand tools; they read blueprints and used micrometers, calipers, and gages; they used rules and compasses to lay out work for machine cutters. Their employment in these capacities extended into every branch of machine-shop manufacture.[2]

The list in table 3 (page 656) reveals the similarity of the occupational performances of women in the two wars.

Other parallels are shown by the following excerpts from a Women's Bureau publication:[2]

[1] Women's Bureau Bulletin No. 12: The New Position of Women in American Industry, Washington 1920.

[2] Women's Bureau Bulletin No. 13: Industrial Opportunities and Training for Women and Girls, Washington, 1922 (p. 11).

Naturally the largest number went into factories manufacturing shells, pistols, guns, and cannon, but in these factories women operated and handled the same kinds of machines and tools as did the smaller, but yet appreciably large, group of women who made parts for engines and pumps; for machines and machinery; for automobiles, motorcycles, and airplanes; for agricultural implements; or who worked on tools, saws, hardware, electrical apparatus, instruments, and clocks.

The kind and extent of experience secured by women in these shops differed greatly. In a few it was sufficiently varied to have in time made them "machinists." * * * In the larger number of shops it was the policy to make "specialists" of women as it is of men. Such shops taught a woman the underlying principles and methods of setting up and operating just one machine, together with the varying characteristics of different metals and tools used in the shop in order to enable her to cut each piece of metal and grind each tool without waste of metal or tool. In other shops where the work was of a repetitive character—which was especially true in munition factories—time was not taken usually to give the women employees general instruction in machine-shop fundamentals. The woman was taught just enough to enable her to turn out, assemble, or inspect duplicated parts at great speed. * * *

* * * their employment was extended during this period in the old occupations and to new occupations on sheet iron, tin, aluminum, brass, and copper sheets. * * * they operated blanking, shearing, and drawing presses to cut or shape these sheets, they soldered and riveted, welded, and assembled; dipped, buffed, and finished. They worked on oil and gas stoves, hoods, radiators, tanks, and fenders of automobiles, on agricultural implements, on tin and aluminum containers and utensils, on brass and bronze fabrications, on cartridges, and on airplanes. The machines operated were largely automatic or required little skill to manipulate. Some women learned how to set up punch presses, but few set up automatic machines. * * *

A smaller number of women * * * went into the foundries * * * While a few were employed at molding * * * sorting, grinding, and filing castings, and laboring, the larger number worked in the core-making branch of the industry, a branch in which women had been used for some years before the war. * * *

In the instrument and optical industries women were employed not only on the metal parts of the instruments but in grinding and polishing lenses, mounting and inspecting, and in assembling the entire instrument. Women were peculiarly adapted to this work because of the smallness of the parts and the delicate fashioning required. * * *

Turning to the woodworking industries, the largest group of women substituted for men during 1917 and 1918 went into furniture and veneer factories, there to work on peacetime products or to make airplane parts or munition and tool boxes or wheels for artillery trucks. * * *

In the chemical industries, exclusive of explosive manufacture, the tasks turned over to women were largely of a laboring character or involved the feeding or tending of automatic machines.

That women were highly satisfactory as workers in the 1917–18 war industries is evidenced by the following statement by the President of an Ohio metal-goods plant:

In reference to the occupations in which women have replaced men the following may give you some idea of the diversity of the work. In the machine department women became expert and got out much greater production in running turret lathes, punch presses, bench lathes, milling machines, drill presses, grinding machines, and engraving machines, and in addition to the operation of these machines we taught them to grind their tools, to act as job setters, and to superintend some of the departments. In the inspection department practically every inspector was a woman. In the assembly departments * * * all were women, and they did better work and got out more production than men whom we tried on the job at various times without success. We found, too, that we could place as much, if not more, dependence in women in coming to their work and remaining on the job, which accounts for our having the lowest turnover in help in any factory ever heard of, which was less than 4 percent per year. We taught women to inspect tools and check them over according to the drawings after they came from the tool shop, in which department women became expert. In the optical department most of the employees grinding lenses were women,

who were remarkably successful in the work. In the assembling of lenses we had none but women on the job, and you will find by inquiring at the Ordnance Department that our lenses and prisms were as fine as any in the world.[3]

The Assistant Secretary of War, acting as the Director of Munitions at that time, gave the following report:

For the successful carrying out of our program for the production of vast quantities of explosives and propellants, as well as shell loading, the women of America must be given credit on account of the highly important part they took in this phase of helping to win the war. Fully 50 percent of the number of employees in our explosive plants were women, who braved the dangers connected with this line of work, to which they had been, of course, entirely unaccustomed, but whose perils were not unknown to them.[4]

WORLD WAR II

If space permitted, similar successful achievements of women as war workers in other lines of endeavor could be cited. Yet as already noted and as definitely revealed by surveys of the Women's Bureau, carried on in the latter half of 1940 and the whole of 1941, employers in defense plants either were ignorant of, or disregarded, the convincing facts concerning women as war workers a quarter of a century ago.

Now the tide has definitely turned and women form a vital and growing force in many of the key war industries. The trends in specific industries indicate that womanpower is even more indispensable in winning the present war than in winning the first one. In general women are being utilized extensively in three broad categories of jobs: Those that women have always done, now multiplied by the demands of war; those where they have been used as substitutes for men, either as replacements or in expanding industries; and those that are new processes never performed by either sex (some of these are the result of subdivision of skilled operations to facilitate mass production, while others are the result of the manufacture of new kinds of equipment).

To assist employers confronted with the need to hire women for the first time or to utilize them on a much more extensive scale, the Women's Bureau has made occupational analyses of a number of key war industries, indicating in which occupations women can be most readily adjusted and in which they can be substituted for men.

As women in the various war industries are performing in general more or less similar jobs, the accompanying list (table 3) cuts across the industries and classifies the occupations according to whether they are using women extensively, to some extent, or to only a slight extent. It should be noted, in this connection, that although woman machine operators frequently do repetitive work, to an increasing degree they are setting up their own machines and performing skilled operations.

Though men are still found in most of the top and highly skilled industrial jobs, women to increasing degree are doing the more skilled, difficult, and disagreeable jobs as well as certain dangerous and sometimes inappropriate types of work. At many processes women are as good as men, while at others they surpass men, especially in jobs requiring patience and painstaking finger sensitivity and dexterity. They soon learn to work to tolerances as fine as ten-thousandths of an inch.

[3] U. S. Women's Bureau, Bulletin No. 12: The New Position of Women in American Industry, Washington, 1920 (pp. 18, 19).
[4] Idem p. 19.

TABLE 3.—*Typical Operations on Which Women Were Employed in War Production in June 1943*

[Code: A—Women now used extensively; B—Women now used to some extent; C—Women now used to only a slight extent]

Occupation	Code
Manipulative skills:	
Operation of machines:	
Drill presses, single and multiple spindle	A
Milling machines, light and medium, and micro machines	A
Light turret lathes and hand screw machines	B
Bench and watchmakers' lathes	A
Grinding machines (surface, cylindrical, and internal)	B
Gear shaping, cutting and hobbing machines	B
Light punch and forming presses	A
Miscellaneous machines: Profilers, shavers, nibblers, shapers, routers	B
Automatic screw machines	B
Woodworking machines: Saws, sanders, shapers, profilers	B
Nailing machines	C
Power sewing machines	A
Optical and opthalmic glass grinding and polishing	B
Burring, polishing, lapping, buffing, etc., on lathes, drill presses, polishing jacks, and other machines	A
Hand finishing machined parts by filing, burring, lapping	A
Hand gluing (for example, of plywood parts)	B
Sheet-metal forming and riveting	A
Welding:	
Acetylene and torch welding	B
Electric arc welding	A
Spot welding	B
Soldering	A
Electrical work—wiring and assembling parts, winding coils and armatures, soldering, taping, etc	A
Assembly—all types of light sub-assembly and final assembly (often requiring the use of hand tools as pliers, mallets, screw drivers, files, electric drills, bench assembly machines, and riveting presses)	A
Artillery ammunition, loading (bag and shell loading, fuzes, primers, etc.)	A
Operations on bullets, cartridge cases, and primers in small arms ammunition	A
Servicing and repairing of planes at air depots (ground mechanics)	A
Painting:	
Spray-painting small parts and products	B
Touch-up work and hand finishing	A
Radium	A
Stenciling, masking before painting, racking and unracking	A
Shipfitters and loftsmen	C
Helpers	A
Inspection:	
Visual	A
Gage, micrometer or caliper (sometimes with blueprint reading)	A
Calibrating	B
Checking and testing raw materials, stock, and salvage parts	B
Packing, labeling, etc	A
Factory service:	
Production planning, routing, and control	B
Draftsmen and tracers	A
Factory clerks (timekeepers, stock-record clerks, etc.)	A
Tool-crib and stockroom attendants and dispatchers	A
Crane operators	B
Guards	B
Electric-truck drivers, intraplant loading and hauling	B
Supervising (forewomen, leadwomen, group leaders)	B
Training (in plant)	C
Personnel relations:	
Personnel administration (director, assistant director, assistant)	B
Employment—interviewing and hiring	B
Nursing	A
Welfare	A

Women's successful performance in the manufacture of most kinds of war material in the present war is common knowledge and is attested by many statements of industrial authorities. Managements in war plants today which not so many months ago scoffed at the idea of woman employees are now equally articulate in their praise of women's ability and dependability in the matter of technical skills.

The Undersecretary of War, in a congratulatory message sent recently to Army's woman employees, said:

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The women of America have responded ably and gallantly to the call to service the war has made upon them. Nowhere is this more evident than in the plants operated by the War Department. They have supplanted men at the bench and the lathe; they are doing civilian work in the nine Service Commands efficiently and in increasing numbers.

In the arsenals, in the ports of embarkation, in the motor centers, in all the War Department installations, their skills are invaluable and their devotion to duty is proven. They are testing guns, making ammunition, fixing motors, sewing uniforms, inspecting ordnance, driving trucks, doing many of the thousand and one jobs that are necessary to keep the machinery of war moving.

I salute them for their faithfulness, their cheerful courage, and their patriotism.

Employment of Women in Various Industries in Present War

AMMUNITION MANUFACTURE

Of the key industries in the present war, the one which opened its doors most readily to women, prior to the United States' entrance into the war, was the manufacture of ammunition for small arms and artillery. One reason for this was that such employment did not run wholly counter to tradition, in view of the peacetime use of about 2,000 women on production in the United States Government arsenals. Thus, with the expansion of such establishments for war purposes, increased hiring of women was a logical procedure. Moreover, as many of the steps that go into the making of bullets, cartridges, and shells are simple, requiring training of not more than a week (designed primarily to instill in the worker the proper precautionary habits for handling explosives), women could be easily utilized.

As the Government during the defense period undertook to build many ammunition plants (particularly for bag and shell loading) to be operated by private management, countless numbers of new jobs were created which had no sex traditions and which could be done by women, often as well as, and sometimes better than, by men. In fact, these plants were erected in many rural areas—chiefly in the Southern, Middlewestern, and Mountain States—with the expectation of recruiting thousands of women.

Within the span of the defense and war activities both the number and proportion of women in these loading plants have mounted steadily until the total runs into many thousands, and constituted in March 1943 over two-fifths of all the factory employees. In the bag-loading plants some processes are given over entirely to women, who are handling not only the smokeless powder but the more hazardous black powder. Though women were not at first employed in the manufacture of explosives, reports show that, in the months since the war started, this field also has opened up to them.

It is impossible to gage fully the amount of womanpower utilized at present for ammunition manufacture, as data are not available for many of the contracting and subcontracting plants.

The types of work done by women in shell-loading plants vary from plant to plant. There is possibility for increased use of women for loading the larger shells, even those of 105 mm. or more, if men are provided to do the heavy lifting. According to the War Manpower Commission, recruiting for replacement needs will become a real problem by the end of 1943 in bag-, shell-, and bomb-loading establishments, and it seems likely that women will be called on more extensively, especially if discrimination against Negro women is eliminated.

In 34 ammunition plants surveyed by the Women's Bureau in 1942–43 the beginning minimum hourly rates for women ranged from less than 40 cents in 2 plants to 70 or 78 cents in 3. The beginning rate in 15 plants was less than 50 cents, 3 paid 50 cents, and the rest 55 to 78 cents. Earnings of factory women in a large representative ammunition plant in the Middle West averaged about $35 for a 48-hour week.

AIRCRAFT MANUFACTURE

The aircraft industry has expanded into a stupendous mass production in an incredibly short time. The spectacular development of aircraft production would have been impossible without the aid of women.

The Women's Bureau survey (in the spring of 1941) of 7 typical aircraft-assembly plants disclosed that only a fraction of 1 percent of the force were women. Among some 100,000 workers on the production lines there was only an occasional woman. Three plants had none. Those employed were engaged chiefly in such work as sewing covers for ailerons, rudders, wing tabs; others were on minor jobs connected with electrical assemblies. The Bureau's occupational analysis revealed that though women were able to perform many of the jobs in the aircraft plants, they definitely were not wanted there. This was true even as late as the fall of 1941, when the War Department was urging the employment of women in airplane manufacture. In fact, only a little over 4,000 women were so engaged a week before the attack on Pearl Harbor.

Then, as the industry realized the task ahead in meeting the President's blueprints for aerial warfare, and the prospective male labor shortage resulting from the draft, the barriers to women were dropped. In June 1943 more than 310,000 women were reported as factory workers in the industry, including airframe, engine, and propeller plants. More than another 100,000 were reported in office and other nonfactory jobs. This industry too has an additional woman force of undetermined number, similar to that in ammunition manufacture, helping to make airplane parts in plants working on a contract or subcontract basis.

The total number of women in this whole field of plane manufacture probably exceeds that in any other war industry, with the possible exception of the electrical industry. The ratio of women in the factory labor force has been steadily increasing, but for military reasons cannot be given in conjunction with the number of women. The proportion varies from factory to factory, the highest in any one plant being almost three-fifths.

Women are helping to make all kinds of planes, from Lightnings and Thunderbolts to Flying Fortresses and Liberators. They are employed on production of autogyros, helicopters, gliders, and the sky "locomotives" for transporting freight. Women are performing with intelligence and dexterity not only all the jobs the Women's Bureau pointed out as readily within their capabilities, but others besides.

The minimum entrance-pay rates for women are very generally the same as for men, 60 cents an hour being the most usual for the day shift, and throughout the industry the policy of equal pay prevails also for the more skilled occupations.

As to typical weekly earnings for women in aircraft, a survey by the National Industrial Conference Board revealed for May 1943 average earnings of a little over $39. The expert woman welder in one plant, reported as receiving a journeyman's rate of $1.32 an hour, and almost $70 in 48 hours, is phenomenal and not usual.

ELECTRICAL-PRODUCTS INDUSTRY

Of all industries that have converted largely to war production, the manufacture of electrical products probably employed the largest proportion of women before the war. The industry has grown considerably, but the relative importance of women has increased even more rapidly. In March 1943 there were nearly 300,000 woman wage earners. In the employment of women this industry probably equals aircraft manufacture, and rises conspicuously above aircraft in the ratio of women to men. For example, it is estimated that in April 1943 women comprised three-fifths of the force in the manufacture of radio and communications equipment. Much of the great growth in women's employment in peacetime, as well as in the war period, is attributed to the development and use of radios.

A special study by the Women's Bureau of war-industry plants in New Jersey, made in the summer of 1942, gives some detail as to women's work on various electrical products. Data for 37 plants employing over 25,000 factory women indicate that substitution of women for men was not extensive. A little over nine-tenths of the women were on the same occupations as before the war, and not quite 7 percent were on jobs formerly done only by men, the rest being on operations new to the particular plants. Of all workers then on processes formerly done only by men, almost a fourth were women. The type of such jobs varied from plant to plant.

Beginning hourly rates reported for women in this study ranged from 40 to 50 cents in more than two-thirds of the plants. As to weekly earnings, if the data of the National Industrial Conference Board are taken as a criterion, the average for May was a little above $34.50; figures compiled by the Illinois Department of Labor for the same date show an average of about $31.00.

WAR-INSTRUMENTS MANUFACTURE

A type of production highly essential to meet many war needs and eminently suitable for large-scale employment of women is the manufacture of sighting, fire-control, scientific, and professional instruments. A striking example is the air pilot's instrument board.

The survey of the war-instruments industry by the Women's Bureau was in the fall of 1941, when the highly skilled processes in instrument making were still regarded in some plants as predominantly male, and before the industry was expanded to its present large-scale production to supply the essential instruments for the wartime Army and Navy, particularly in connection with the airplane and shipbuilding program.

The expansion of the industry and the decrease in the male force available for the instrument field, as for others, have opened up opportunities for thousands of women; almost two-fifths of the factory workers in the spring of 1943 were women. The subdivision of some

of the old, more highly skilled jobs into new and simpler processes has led to more rapid absorption of women.

In the 17 plants included in the Bureau's survey in the fall of 1941, the proportions of women varied greatly, ranging from 3 to 50 percent. It was clear that women constituted a great potential labor force for this type of manufacture, with its small, light, intricate products. Statistics issued by the War Manpower Commission, which included other than factory employees, showed the woman labor force in the industry to have increased from 26 percent of the total in May 1942 to 43 percent in May 1943.

No recent data on rates in this industry are available. In the fall of 1941, women's minimum hourly rates ranged from 35 to 55 cents, 40 cents being the most frequently reported; for men the range was from 40 to 61 cents, and 55 cents was the most common rate. In the 2-year period since then there has probably been some increase, particularly in view of the rising cost of living.

CANNON AND SMALL-ARMS MANUFACTURE

In the manufacture of cannon and small arms, almost no women were employed prior to the attack on Pearl Harbor, but their number has been mounting conspicuously since then. An investigation made in the summer of 1942 of four Government arsenals and four private enterprises disclosed 11,000 women among the 75,000 employees, or 15 percent of the total.

The small-arms branch was employing women to a much greater extent and on a wide variety of machines—in fact, on more different types of machine tools than were reported in any other of the war industries studied by the Women's Bureau. More women were operating milling machines than any other one kind. An April 1943 estimate placed the proportion of women in this branch of industry at about 31 percent.

In cannon manufacture, characterized by much heavy work, women were found on many different kinds of operations but none were then running heavy-duty machines in the big-gun shops. In April 1943 almost 16 percent of the employees on cannon were women.

The Bureau's study revealed not only striking variations from plant to plant in the utilization of women but many jobs where they could replace men and release them to fields having more acute need of male labor. Men and women interchanged on the same job or carried on comparable work on the same shift; or women performed, on the day shift, operations done by men at night. Again, a certain type of work performed extensively by women in one plant might be done entirely by men in another; for example, one arsenal had no women on even the simplest or lightest machine operations in making small-arms components, but had them driving electric trucks, making large wooden packing boxes, operating band saws, and so on. Other firms had no women on such jobs as these but in certain machining departments 60 percent were women. Many men, whom women could easily replace, were also found in clerical jobs; in fact, 40 to 82 percent of the office workers in the small-arms plants were men.

Women could have been utilized to a much fuller extent in this field than they were, since much "worrying away of the metal" was necessary and women are particularly good at this. An indication of the

amount of metal that must be removed by gradual machining is gained from the fact that for one type of machine gun the raw stock and forgings weigh 101 pounds and the finished steel parts 18 pounds.

With the influx of women to these industrial establishments after the United States, entrance into the war, the basing of rates on occupation rather than on sex became a pressing issue, because there had previously been an almost entirely male force and the hiring of women brought few or no changes in the physical characteristics of the jobs.

Three of the eight plants visited in the Women's Bureau survey had adopted the equal-pay principle. Where wage differentials existed, the problem had become increasingly acute both for the women hired and for the men inducted into the armed forces, whose wage levels thus were lowered on the jobs to which they hoped to return. That this problem still needs solution in some cases is indicated by the fact that, even in 1943, of three plants making guns, howitzers, and mortars, none paid women the same minimum entrance rates as men.

In four of the gun plants reporting in 1942–43 on women's beginning minimum hourly rates, the range was from 50 to 60 or 65 cents, while in eight small-arms establishments such rates ran from less than 40 cents to 60 cents.

PRODUCTION OF MACHINE TOOLS

In the highly skilled machine-tool manufacture some women gained a slight foothold after the country's involvement in hostilities, their first opportunity since World War I. The rapidity with which women have recently been hired, however, may be judged from the fact that by April 1943 there were nearly four times as many wage-earning women in the industry as in August 1942. It is not at all uncommon today to find that in plants with 2,500 or more workers, from 12 to 20 percent are women.

A special study of 15 well-known machine-tool shops, made by the Women's Bureau in the summer of 1942, revealed that about 4 of every 5 women in factory work were in productive occupations such as machining, assembling, and inspecting. The others were primarily in various shop clerical jobs, such as timekeeping, stock chasing, production control, and the like, in service work, in the toolroom and tool crib. The data showed, furthermore, that in spite of the great size and complexity of the average machine tool and many of its parts, substantial numbers of women could be employed without extensive training in plants making only the machine tools proper as well as in those where smaller and less-complicated accessories and other products are also made.

Curiously enough, the amount of experience the management has had with women in factory work shows no discernible correlation with the degree to which the scope of women's employment has broadened as a result of the war emergency. Three of the firms that were most progressive in their employment policies in regard to women, opening to them a variety of productive jobs under liberal conditions for the gaining of skills, had no women on production prior to the spring of 1942.

At the time of the study one firm was planning eventually to place women on almost every type of work, except where heavy lifting was required. This included the operation of a variety of machine tools.

Women were to be hired in this firm as replacements for men and not to expand the labor force.

Data on minimum entrance rates for women in 11 firms visited in 1942–43 show a range of from 40 cents an hour in 2 plants to 60 cents an hour in 1; 7 of the plants paid from 45 to 55 cents. Four of 10 firms reporting paid the same minimum entrance rates to women as to men. In May 1943 the average weekly earnings, as reported by the National Industrial Conference Board, were a little over $36.

SHIPBUILDING INDUSTRY

The necessity to produce in record-breaking time the ship tonnage needed for war, has led to a tremendously expanded work force and to the revolutionary procedure of active recruitment and widespread utilization of women in this former stronghold of male labor. In 1917–18, few women were employed in shipyards and most of these were in the yards which attempted substitution of women for men. Further, women had no place in the industry in peacetime; the 1939 Census of Manufactures revealed only 36 women so employed.

It was not until the summer of 1942 that the need to draft women's services became acute, simultaneously with the growing scarcity in male labor for this vital industry. As many inexperienced men had been quickly trained and adapted to shipyard jobs and as women were successfully performing more or less similar operations elsewhere, it was decided that womanpower must be the answer to enable the shipbuilding program to be carried out on schedule time.

In June 1942, only 0.4 percent of the wage earners in commercial yards were women, but by June 1943, the proportion had risen to about 7 percent. The extent of women's employment varies from yard to yard.

In a number of yards the prejudice against women on the part of both management and labor, though still lingering in some sections, is rapidly disappearing under the stress of necessity. The attitude of one official is typical. When questioned over a year ago in the Women's Bureau survey of shipbuilding as to what jobs would be most suitable for women if and when needed, he replied "None." Today that yard employs several thousand women who are proving themselves satisfactory at numerous occupations.

At present, thousands of women are at work in shipyards on all coasts. They are helping to build and repair all types of vessels—Liberty ships, destroyers, cruisers, and submarines—and everywhere are proving their ability to do the job whether difficult, disagreeable, or dangerous. They are found in the shops, and outside in the yards or in the ways in summer heat or below-zero temperatures. In some cases they can be seen walking on the narrow planks high up on the scaffolding, going up and down ladders, or crawling with their welding equipment through small openings within the hull of the ship. They may even be seen cleaning out the bilge, or doing sandblasting on the outside of a ship in drydock.

Although there are various shipbuilding jobs beyond women's strength or endurance which they should not be called on to do, the end of their possible utilization is not yet in sight.

This industry deserves honorable mention for having employed women on the equal-pay basis with men, in regard to both minimum

entrance rates and wages for the various occupations and degrees of skill. However, to some extent women's advance in the industry is blocked, when in the course of progression are found heavy jobs they can neither perform nor bypass under union or plant regulations.

Shipbuilding in general leads all the other war industries in regard to average wages for woman employees. The National Industrial Conference Board figures for May 1943, show an average weekly wage somewhat in excess of $44.

STEEL MILLS

The iron and steel industry is another which, under the exigencies of war, is capitulating to woman labor. Vital as the steel mills are for the Nation's war effort, they have not been exempt from the comb-out for servicemen, and reports from various sources disclose a steady infiltration of women to an increasing number of operations in manufacture of this critical material.

To be sure, for many years some girls and women have been employed in the industry. In recent months, however, virtually all the large steel companies have substituted women for men on a substantial and increasing number of jobs. This is particularly true in the Middle West, where acute shortages of male workers have developed.

In general, women are employed at work that is not too heavy or on which sheer muscle is not essential. They are doing jobs in the unskilled-labor class as well as a number calling for a considerable degree of skill. They may be "hot chain men," crane operators, core makers, chemists, or factory clerks, or they may be engaged in nail and wire drawing, or running various kinds of machines in the maintenance shops. Women are even employed in some mills to finish heavy plate for tanks, landing mats, deck plates, and steel for cartridge cases. At one of the Gary (Ind.) mills, women are working in many departments. They have been admitted to the open-hearth and blast-furnace works for the first time in history, operating cars for transfer of materials, serving as test carriers, delay clerks, and ingot shippers. At the Gary armor plant operated for the Army, some time ago women comprised a third of the force and it was believed that eventually the proportion might be increased to a half.

OTHER ESSENTIAL WAR INDUSTRIES

Women's share in war production is too extensive and varied a story to treat in satisfactory detail in this résumé. Bare mention must suffice of the introduction of women into certain fields, their increased employment in others, and their useful services in various kinds of enterprises, not usually identified with their labors, that are concerned with both war and civilian needs.

Combat vehicles.—Even plants producing heavy items of combat material, such as tanks or large artillery pieces, are not only employing more and more women but placing them on types of work usually done by men. By March 1943, women formed 7 percent of the workers in tank and combat-vehicle factories.

Rubber.—In the rubber industry, which employs large numbers of women in peacetime, many women have for months been doing such jobs on military equipment as machine-sewing on barrage balloons,

making flotation bags, applying rubber cement where fixtures are attached to assault boats, finishing rubber rafts, testing inflation of gas bags, and storing and inspecting life belts. This industry is now training women for the previously masculine operation of tire building. An Ohio plant, using 100 women on tire building, reports the experiment as eminently successful, with the women doing even the heavier part of removing the tire from the drum and tossing it on the hook of the conveyor system that carries it away for curing and vulcanization. Women in the rubber industry are a growing part of the force, comprising 27 percent in May 1942, and 39 percent in May 1943 (including all women in this field, office as well as factory workers).

Lumber.—A few illustrations will help to depict the new position of women where only men have been employed. A West Coast lumber company last year charted no fewer than 135 jobs that women might do in its factory work. Other lumber mills in the Northwest have hired so many women that they now constitute a fifth of the work force. Even the logging camps have been invaded by a woman contingent, on such outdoor jobs as running logs on the river or inspecting floating logs for loose timbers. Women are even reported as responsible for the felling of trees. Nearer the mills they are employed in sorting, stacking, painting ends of lumber, or loading box cars with the smaller material.

Mining.—A decided innovation is the employment of women in certain above-ground jobs in the mining industry—for mines producing coal, copper, iron, silver, and gold. For example, the coal mines have begun to employ women in the mine shops and for picking slate on mine tipples. In connection with iron ore, women are found as laboratory technicians testing samples. In the nonferrous-metal mining industry some women are being hired to tend conveyors from the mill crushers, or to operate trippers (the small ore cars which shuttle back and forth distributing ore to the bins). Other women are being used to regrade ore and some are serving in mine-lamp houses, repairing and maintaining miners' electric lamps.

Pulp.—In the pulp mills women have stepped into men's jobs sliding slabs of paraffin into vats of coating solutions, operating the special presses that roll off tons of waxed paper every hour, or acting as testers in the bleach plant.

Oil refining.—Oil refineries on both the East and the West Coasts, have taken on women for various processes formerly done exclusively by men, such as operating control valves on turbines which clean carbon from pipes or doing various kinds of laboratory work.

Beet-sugar refining.—Women have gone into beet-sugar refineries to operate machines such as juice evaporators, to run first and second carbonation, third saturation, centrifugals, granulators, and melters; and some have learned to boil sugar, a job that is exacting and somewhat of an art.

Flour milling.—To some extent, with possibilities for increased numbers, women have entered the flour-milling industry to take over some of the jobs formerly done by men. These range from packaging and loading sacks up to 24 pounds in weight to laboratory testing. Women are also operating sewing closure machines.

Consumer goods.—Any roll call of essential war industries must include those producing such important consumer-goods manufactures as fabric, food, gloves, shoes, and many other articles of equipment

for troops and cantonments—industries which normally are large employers of women and which during the present emergency are relying on them even more extensively. In May 1943, women constituted about 49 percent of the textile workers and 77 percent of the clothing workers. The food industry is one of vital importance to the armed forces and civilian population as well as to our allies through the Lend-Lease program. The extent to which it relies on women's labor is indicated by the fact that in May 1943, women formed 34 percent of the force. However, in some branches, notably canneries, women constitute a conspicuously large part of the workers.

Earnings in the textile, food, and apparel branches fall materially below those in the key war industries. Recent Illinois data show that in all three the average weekly pay for women ranged from $24 to $26. New York figures tell a similar story except that for apparel factories, a $30 average was reported. The National Industrial Conference Board reveals averages in the several fabric branches ranging from $24 to just below $31.

Occupations requiring scientific training.—One field in which women have forged farther ahead in this war than in the last, and which cuts across practically all the industries discussed to this point, is that of laboratory work or operations requiring scientific training. In 1917–18 women had few if any opportunities along these lines, but today women as technicians, draftsmen, cartographers, chemists, physicists, radio operators, metallurgists, meteorologists, geologists, engineering aides, and even as full-fledged engineers, have been in great demand.

Along lines of industrial relations, personnel administration, and supervisory work, women in considerable numbers are rendering valuable service in many of the war plants with a large woman force.

Clerical work.—No roster of women's war occupations is complete without the clerical field. Many additional opportunities for office work have opened up to women not only in the Government service, but more spectacularly in unusual positions in industrial establishments. Various types of war plants have hired women for clerical work in place of the men they once employed, and have put women on factory clerical jobs quite different from the usual more or less routine office work. In the opinion of an official in a large company, there will be a continuing utilization of women for some of these assignments after the war, for which they would not have had an opportunity except for the war.

Transportation and communication.—Unique in their widespread involvement with both military and civilian requirements are the highly complicated and important fields of transportation and communication. The railroad, local transit, and airway branches of the transportation industry not only have been admitting women to men's jobs, but in many instances have been actively recruiting them. In May 1943, about 195,000 women were engaged in the various branches of transportation, and many additional women are needed.

The commercial airlines, the youngest branch of the industry, have readily accepted women on the same terms as men and given them the same training, the same wage rates, the same advancement opportunities, and the same seniority rights. This branch was said to be able to absorb one woman for every two men, using women, for example, in ticket offices, shops and hangars, on the airfields, and on the planes as hostesses.

Although the railroads actually are employing a larger number of women than any other transportation branch, women constituted in May 1943, only 6 percent of all employees. It was expected that during 1943 the total of 100,000 women employed in World War I would be reached and passed. Despite some opposition on the part of male labor, women already are doing jobs regarded definitely as men's in a peacetime economy, in the offices and shops, even in the roundhouses, at ticket windows and information desks, in station and baggage-room work, as cleaners and oilers of engines, as turntable operators, and even on "dressing" the tracks—to mention only a few of the many occupations on which women have been found to be satisfactory.

In local transit service throughout the country a total of 15,854 woman workers was reported for May 1943, and the intercity bus services had 8,510 women in May. As conductors and motormen on trolley cars, as conductors and drivers on busses, as ticket agents, loaders, traffic clerks, and accountants, women have become familiar sights. They also are at work behind the scenes, in the shops, car barns, and garages.

Trucking companies (with over 54,500 women in May 1943) and taxicab firms also are finding women efficient substitutes for men.

The entire communication field, which has always depended to considerable extent on woman workers, is now employing even larger numbers, and is continually calling for more, in the lines which have developed the most conspicuous breaches through the withdrawal of men—the war-burdened telephone and telegraph services and commercial broadcasting studios.

ESSENTIAL CIVILIAN SERVICES

Reference has been made to the acute need for workers to carry on such essential civilian services as work in laundries, dry-cleaning plants, canneries, hotels, restaurants, stores (department, specialty, grocery, drug), and beauty shops; to engage in office work, teaching, home nursing, child care, office cleaning, domestic service, and other pursuits.

Until recent months too narrow a concept was held as to what constituted war work, too little attention paid to the indispensable role of such civilian jobs in the Nation's wartime economy. However, September 1943 was chosen in which to hold a special campaign to salute and recruit women as workers in more than 100 of these "unglamorous" everyday jobs listed by the War Manpower Commission (which is sponsoring the campaign) as "war jobs." To dramatize these jobs as comparable in importance to the production of munitions, a Nation-wide effort, in which many forces are cooperating, is being made.

As the war effort lightens, these essential civilian jobs will require two in every three of the woman workers. It is hoped that the recruitment campaign will induce many from the still large reserve of nonemployed housewives without small children to respond, including women who would not under ordinary circumstances go into such pursuits for remuneration but who as volunteers may be rendering more or less similar services, for example, in hospitals, churches, or canteens.

Unfortunately, from the viewpoint of woman wage earners accustomed to employment in these essential services, the war period has

witnessed no sufficient effort to increase the wages for such jobs, which too often are found in the low-paying class. Recent data for laundries in Illinois, New York, and New Jersey show, for example, average weekly earnings of woman wage earners ranging from $17.50 to $21. Such wages, as compared with those in almost all other fields competing for labor, are convincing evidence of the reason for the forced closing (reported by the Office of War Information) of 600 laundries in various localities during the past year.

The National War Labor Board has recently, in a number of cases, approved a raise in pay rates for workers in laundries as well as for telephone workers and certain hotel employees, on the basis of substandard wages.

An opinion in connection with an increase of 15 cents an hour granted to workers in 12 Portland (Oreg.) laundries, despite a previous advance commensurate with the "Little Steel" formula, declared:

> Reasonable price adjustments would seem to be justifiable in such cases as the instant one so that the operators will not be compelled to pay such low wages in order to stay in business. American labor should not be asked to subsidize American industry by working for wages below the level of health and decency. In cases such as this one, that is exactly what a wage denial would amount to. The burden of subsidizing the laundry industry of the country should be lifted off the backs of its low-paid workers and placed upon the consumers of laundry service.

Canneries, too, which are having a struggle in many areas to get enough workers for their emergency peaks, suffer from the custom of paying wages below the levels in most other industries. An indication of their difficulty in securing woman labor in a community, in competition with the better-paying war industries, is found in the New York and Illinois averages for the food industry in the spring of 1943—$23 and $25, respectively.

For the same reason, stores in many places have been unable to hold their employees. A Bureau of Labor Statistics study of Philadelphia department stores disclosed a $24 average for women in the selling division in September 1942, while a more recent Illinois report gave $21.54 as the average in that State. Earnings of woman clerical workers in manufacturing establishments in October 1942, averaged $27.50 in Illinois and $30 in New York.

It is true that these various enterprises have suffered seriously from the induction of men into military service, but concurrently both male and female workers have been migrating to better-paying occupations or to those more closely identified with the war. As a result, the public in many areas is experiencing some difficulty in obtaining food, clothing, and various services—especially when employment in war work and the more complicated mechanics of ordinary living reduce individuals' opportunity to take care of such matters themselves.

The labor shortages and the needs of these civilian services are reflected in the newspaper advertisements for workers. A cross section of these columns throughout the country tells a story that is strikingly similar and reveals near-desperation on the part of many employers and an effort to "glamorize" the more humble jobs by offering special inducements. Among these inducements are a chance to work for a superior company, with good or ideal working conditions; a 48- or 40-hour week, with Saturday afternoons off and no Sunday work; unusually good pay, with bonuses or commission; paid vaca-

tions; pay while learning; rapid promotion; permanent employment; in short, a real career. In some areas there is a definite appeal to the patriotic motive. Recruitment of all types of workers—men and women, white and Negro, any age from 16 to 65, for part-time or full-time work—seems to be the aim of many of the "ads."

Post-War Problems and Possibilities

Even while war is being waged, and before the end is in sight, a common question is, What will become of all the woman workers in the post-war period? The frequency and implication of this query are cause for concern. The approach to this question indicates little differentiation between the approximately 13 million women in the labor force prior to the war and the several million added since. As a matter of fact, however, it will not be possible to keep two separate accounts, one for the regular and one for the emergency workers, in a transitional period of demobilization of troops, curtailment of war manufactures, retooling of plants to peacetime production, and development of new industries and services. Therefore, careful planning for woman workers in general and in relation to the whole labor force and the national economy is imperative.

The necessity for such planning in advance of the cessation of hostilities is indicated by the attitudes and the events following the armistice of November 1918. The situation was discussed by the Director of the Woman in Industry Service of the U. S. Department of Labor at the conference of the American Association of Governmental Labor Officials on December 28, 1918.[5] Briefly, her report called attention to the fact that despite the national importance of women's work, their willingness to respond to the call of industries and services, their efficiency along all lines, reaction had set in and its forces were affecting the status of woman workers. Certain labor organizations (upheld in one case by the National War Labor Board of that period) as well as various public speakers took the view that women who entered industry during the war should relinquish their jobs in the post-war periods. The attitude was due to men's fear of unemployment and fear that wage cuts might result for them because of the availability for jobs of lower-paid women who might be kept on while returning soldiers would search in vain for work.

The Director of the Woman in Industry Service stressed the fact that the way out of the dilemma was a united attack on the cause of the fears, and made the following suggestions and comments:

> The strengthening of labor exchanges * * * a wise extension of agencies of adjustment and these can be successful only insofar as they derive their strength from real collective bargaining. * * * It is the absence of these agencies of adjustment which makes the present situation so strained. * * * Labor legislation must meet the test of the new spirit while it busies itself with specific gains very necessary for workers in industry. * * * It is not difficult to prophesy that the problem of labor legislation just ahead is not the formulation of concrete aims but the development of a new spirit and method in administration. Two aims for labor legislation for women workers may be emphasized as of immediate importance. They are the enactment into law of the 8-hour day and the fuller representation of women in important positions in administration of labor laws.

This official had also pointed out that "the problem is not one of withdrawal of any group of workers voluntarily but rather the organ-

[5] Data are from material in the files of the Women's Bureau, U. S. Department of Labor.

ization of industry in such a way as to utilize to the full all of the available working forces of the country," and "for women in industry the chief danger is that they will remain in certain industries or be introduced into new ones at a lower wage scale than is paid to the men. * * * The war has demonstrated that the range of possibilities for efficiency by women in industry is much larger than has been assumed in the past. This is notably illustrated in the work of women in machine processes." [6]

Many of the above recommendations have become definite factors in the present situation and influential in shaping the future situation for women. In the field of labor legislation, progress has been made in recent years, on both the State and Federal levels, to place a floor under wages and a ceiling on hours, with quite extensive provision for the 8-hour day in spite of temporary relaxation of this standard in some quarters to meet war emergencies. These better legal standards, so generally lacking 25 years ago—and still not Nation-wide in application—will help to bolster women's status in the post-war transition period. A larger share also is now taken by women in the administration of both Federal and State legislation to promote the welfare of workers. A network of public employment offices serves both men and women, and the social security system offers protection against the hazards of unemployment and old age—bulwarks that will be strengthened in the near future if plans now formulated are carried out. Likewise, collective bargaining is now an effective instrument in the hands of a substantial and growing number of woman wage earners; today over 3 million women are found in the ranks of organized labor.

USE OF NEW SKILLS

Another factor that will prove of decisive importance in the adjustment of women as well as men, in the reconstruction period, is the special training received by many persons as a result of the war. It is true that during World War I there was a training program to meet both industrial and military needs, in fact, the Federal Board for Vocational Education was created in 1917; but the kinds and extent of training at that time have been far outstripped by the present program. Though the vocational-training opportunities open to women during the two decades before World War II gave them practically no preparation for their work in the present war effort, and though from the special vocational-training system created as part of the defense program women derived only slight benefit, since then statistics tell an impressive story for women. By June 1943, almost 480,000 women had had preemployment courses and over 300,000 had taken supplementary courses given by the Vocational Training for War Production system. By May 1943, another 140,000 women had taken advantage of the short Engineering, Science, and Management War Training courses, now given free in some 200 colleges and universities. Many hundreds of women have been given technical training by the Signal Corps, Army Air Service, Army Ordnance, the navy yards, and other Government agencies. Countless women have participated in the training-within-industry program for upgrading workers and preparing them to become job instructors, and

[6] Life and Labor (National Women's Trade Union League), December 1918 (p. 272).

also in the extensive training programs of plant managements which have given specialized but simpler in-plant training. More unusual are the arrangements, made with certain educational institutions by some industrial establishments, to give training at company expense to promising young college women, for positions as draftsmen, technicians, engineering aides, aeronautical engineers, etc.

Altogether, as a result of such training programs a goodly proportion of women have acquired skills that will be needed by many enterprises in the coming years. In this connection must be considered the excellent and truly amazing training that some millions of service men have received in this mechanized and highly technical warfare of land, water, and air forces. The men's new skills will serve as valuable qualifications in their post-war reemployment. Despite the Selective Service Act guaranty to demobilized servicemen of their pre-war jobs when circumstances permit, many will prefer other fields more closely allied with their war training. Already, new developments—radar, electronics, plastics, global airlines, world plans for rehabilitation, superhighways—are discernible, which seem to present alluring opportunities for thousands of specially trained men and women. Many workers, especially women, will be absorbed by a rapid and probably phenomenal expansion in consumer-goods manufacture to help replenish depleted stocks the world over.

EQUAL PAY FOR EQUAL WORK

One other vital factor calls for a brief discussion—the principle of equal pay for women. In fact, whenever men and women may be in competition for jobs the essential factor for preventing injustice to either sex in wartime or peacetime is that women be paid the same wage rates as men for comparable work. From its beginning in World War I the U. S. Women's Bureau has urged consistently that wages be based on occupation and not on sex.

The question of equal pay became a very definite issue 25 years ago when, as now, women were taking over jobs left by men called to the front. Recognition of the principle was given by the National War Labor Board of that time through its application in 50 of the cases that came before it, but there were numerous instances of inequality in pay.

Greater gains, and it is to be hoped more lasting ones, seem to have been achieved in the present emergency. Though the beginning of World War II found the double wage standard largely prevailing, considerable impetus has been given by industry, Government, and labor to the extension of the equal-pay principle with the large-scale replacement of men by women. As noted, two of the key war industries (aircraft and shipbuilding) employing large numbers of women, and to great extent in place of men, generally pay women the same rates as men, when on identical or comparable jobs, and also the same entrance rates for new and inexperienced workers. In the other war industries surveyed by the Women's Bureau, four-fifths of the plants paid for the job regardless of sex and four-fifths started inexperienced men and women at the same rate.

The present National War Labor Board has taken several important steps to promote a widespread adoption of the equal-pay principle. In a number of important cases the Board has ordered employers to

put the equal-pay principle into effect in their plants. The Board also issued its Order No. 16, which permits employers voluntarily to make adjustments to equalize the wage or salary rates of women with rates paid men for comparable work, without prior approval by the Board.

Thus, labor unions are given full opportunity by the Government to have an equal-pay clause written into their contracts. The general attitude of organized labor is manifested in the endorsements of the policy by both the American Federation of Labor and the Congress of Industrial Organizations after the United States entered the war. Some unions forged ahead immediately in this matter. The stand of the War Labor Board, plus efforts made by the Women's Bureau, has stimulated other union activities in this direction. Current and comprehensive data are not available, but several months ago it was revealed that the United Electrical, Radio and Machine Workers had entered into some 150 signed agreements having an equal-pay clause and covering at least 800 factories. The United Rubber Workers had negotiated about 142 contracts, and the United Automobile, Aircraft, and Agricultural Implements Workers probably 50, with a similar clause. Definite progress in the requirement of the same wage rates for women as for men also has been made by some of the American Federation of Labor unions.

Other aspects that must be considered in the post-war program for women were pointed out recently by the Director of the U. S. Women's Bureau:

> There are two realistic approaches to the problem (as to future developments for the 18 million women, or so, employed in the war period). First, a large number of these women do not expect to continue in paid work. Like their men in the armed forces many women consider their present employment a patriotic duty. They know with the coming of peace their special work will be over. Automatically they will return to their regular business of homemaking.
>
> But there is another inescapable side to the story. For decades in this country millions of women have had to earn their own living, and many also have had to be the total or partial support of dependents. As a result of the war women's wage-earning responsibilities will be greatly increased. A large number of women in all types of positions will have to continue to take the place of men—to take the place as breadwinners of men who fail to return or who come back incapacitated from the battle fronts.

The Women's Bureau is giving attention to post-war plans and possible developments for woman workers, realizing that their employment is complicated by issues distinct in a number of respects from those pertaining to men. Special consideration is imperative not only to guarantee full employment opportunities to women in the transitional period and to prevent undue unemployment difficulties and unfair discrimination against them, but also to dovetail all such questions with the post-war program that will be evolved for men.

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State Laws and Women Workers

By **MARY ANDERSON**
Director, Women's Bureau
U. S. Department of Labor

This is the fourth article in the series "Training . . . Key to the Skilled Help Shortage," prepared by C. Warren Stapleton, Training Specialist, Apprentice and Training Service, War Manpower Commission.

Reprinted from BUS TRANSPORTATION ✦ , 1943

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This is the fourth article in the series "Training . . . Key to the Skilled Help Shortage," prepared by C. Warren Stapleton, Training Specialist, Apprentice and Training Service, War Manpower Commission.

AMONG the various factors connected with training for war time replacement of personnel, the employment of women is of primary importance. In employing them, however, it is well to be familiar with various laws governing their employment. Accordingly, Miss Anderson very kindly agreed to prepare this article. It goes without saying that Miss Anderson is one of the foremost authorities in this field. Her sympathetic interest in the employment of women in the bus transportation industry, as expressed in this article, will, I am sure, be helpful to those faced with the problem and responsibility of training women for the vitally essential work of manning, maintaining, and operating bus equipment.

C. WARREN STAPLETON

WITH WOMEN the major source of available labor supply in the bus transportation industry today, it is becoming increasingly important for bus companies to know the laws affecting their employment, especially in mechanical work and in the heavier tasks normally performed by men.

State labor laws for women may be classified in three principal groups: (1) Laws regulating women's hours of employment; (2) Laws regulating working conditions or prohibiting certain hazardous employment; (3) Laws providing for the establishment of minimum wages.

Bus companies which have customarily employed women as cleaners, restaurant workers, in other service occupations, and in offices, are already acquainted with applicable minimum-wage regulation in the states in which they operate. It is believed that the new types of jobs which women are entering in the bus transportation field will be little affected by such regulation, inasmuch as minimum-wage rates have been established chiefly for the occupations in which women are customarily engaged and which are traditionally low paid. Thus, the highest minimum-wage rate now in force in any state is $18 for a 40-hour week. It is expected that bus transportation companies will pay women the rate for the job, as is now the general practice in industry, so their wages will be well above the legal minimum.

State hour legislation for women has for its express purpose protection of the health and well-being of women workers, and all states but five have maximum-hour legislation. Employers unfamiliar with state hour laws for women may be surprised to learn that in some states the law gives legal sanction to maximum daily or weekly hours which they know from their own experience are too long for efficient operation. It should be stated at the outset, therefore, that some of these laws were enacted years ago and establish standards which industry has long since discarded as in excess of human capacity and unproductive.

Many employers voluntarily adopt hour schedules which safeguard the health and efficiency of their employees. Experience has shown that standards which protect workers' health also make possible the greatest efficiency and result in greatest output. The health and efficiency of workers in the bus transportation industry are matters of special importance because they affect directly the safety of the public. For this reason, bus companies which expect to employ women should be interested not merely in

the precise legal requirements of the various states in which they operate but also in standards generally recognized as most satisfactory for women's employment.

The Women's Bureau, on the basis of its continuous experience with the employment of women from World War I to the present time, recommends the following basic standards for effective employment of women in the war period: An 8-hour day, with adequate rest periods and at least 30 minutes' time off for lunch; a work week of 48 hours or less; at least one day off in seven. Work schedules based on these standards insure the women workers' greatest efficiency over an extended period of time.

The hour schedules recommended by the Women's Bureau for women in all occupations have also been recommended for workers in war plants, both men and women, by the eight government agencies chiefly responsible for maximum war production (War Department, Navy Department, Maritime Commission, War Manpower Commission, War Production Board, Public Health Service, Labor Department, Commerce Department). Early in 1942, these agencies issued a joint statement of policy endorsing the 8-hour day, 48-hour and 6-day week, and 30-minute midshift meal period, stating that experience has shown these standards to be best for sustained maximum output. This policy was subsequently endorsed by the Office of Defense Transportation.

Laws establishing a maximum 8-hour day as a standard for women in some or all occupations are now in effect in 18 states and the District of Columbia; a maximum work week of 48 hours or less in 23 states and the District of Columbia; one day's rest in seven in 23 states and the District of Columbia. (See accompanying charts.) Twenty-five states and the District of Columbia require an interval for meals. In other words, in more than half the states in which women's maximum hours of employment are regulated by law, the standard 48-hour week which the Women's Bureau recommends and which industrial experience has proved most satisfactory is now the legal requirement. Fifteen states prohibit, and two others regulate, specified types of employment during certain hours of the night for women 21 and over.

Maximum-Hours and Day-of-Rest Laws

State hour laws vary as to industries covered. Some are of general coverage, and apply to any "gainful occupation" with specific exclusions. Others specify certain occupations without reference to any particular industry. In general, women employed by bus transportation companies may be said to be covered by a state law which expressly covers the transportation industry, or by a law which does not exclude this industry, but covers any "gainful occupation", or by a law which covers the specific occupations in which workers in this industry are employed.

Coverage Of All Women Bus Employees

	Hours Per Day	Hours Per Week	Days Per Week	
Arizona	8	48	6	13-hour over-all day
California	8	48	6	13-hour over-all day in restaurant
Dist. of Col.	8	48	6	.....
Illinois	8	48	6	.....
Louisiana	8	48	6	.....
Nevada	8	48	6	12-hour over-all day
Ohio	8	48	6	10-hour over-all day
Utah	8	48	...	12-hour over-all day
Pennsylvania	8	44	5½	10-hour over-all day
North Dakota	8½	48	6	.....
Arkansas	9	54	6	.....
Idaho	9	..	...	.....
Massachusetts	9	48	6	.....
Missouri	9	54	...	.....
New Mexico	8	48	...	.....
Oklahoma	9	54	...	.....
Texas	9	54	...	.....
Wisconsin	9	50	...	.....
Maine	...	54	...	.....
Oregon	10	60	...	.....
South Dakota	10	54	...	.....
Tennessee	10½	57	...	.....

In addition to laws limiting maximum daily and weekly hours and providing for a weekly day of rest, 17 states have laws or orders regulating or prohibiting the employment of women 21 and over during certain hours of the night. These laws cover only specifically enumerated occupations. Frequently included are three occupations in which women are likely to be employed by bus transportation companies — mechanical, office, and restaurant work. One or more of these occupations are covered by night-work laws in the following states (the prohibited or regulated hours appearing in parentheses):

Connecticut—mechanical, restaurant (10 p.m.–6 a.m.)

Delaware—mechanical (11 p.m.–6 a.m.); telephone and telegraph office or exchange, and restaurant (8-hr. maximum for work between 11 p.m. and 7 a.m.)

Maryland—mechanical (8-hour maximum for work between 10 p.m. and 6 a.m.)

Massachusetts—mechanical (10 p.m.–6 a.m.)

New Hampshire—manual or mechanical (8, 48-hour maximum for work on more than 2 nights a week between 8 p.m. and 6 a.m.)

New York—workshop (10 p.m.–6 a.m.); restaurant not in hotel (12 p.m.-6 a.m.)

Ohio—ticket sellers (10 p.m.–6 a.m.)

Wisconsin—restaurant workers (8, 48-hour maximum for work on more than 1 night a week between 8 p.m. and 6 a.m.); other workers (6:30 p.m.–6 a.m.)

Another type of special provision for women are the meal period laws now found in 25 states and the District of Columbia. The length of time required for meals by these laws varies. Meal period provisions applicable to one or more occupations (usually mechanical, restaurant, or office in the bus transportation industry) may be summarized as follows:*

[1] (1) *30 minutes or less:* Arkansas, California, Delaware, Kansas (20 minutes), Kentucky, Maryland, Nebraska, Nevada, New Jersey, New Mexico, North Carolina, North Dakota, Ohio, Pennsylvania, Utah; (2) *45 minutes:* Delaware, District of Columbia, Louisiana (dinner), Massachusetts, New York, Oregon, Washington; (3) *1 hour:* Maine, New York, Washington, Wisconsin.

Many of the laws set a maximum daily number of consecutive hours beyond which further employment is prohibited unless a meal period of the specified length is given. The purpose of these laws is not merely to give the worker food but to allow her a short break in daily routine. Experience has shown that rest and an opportunity to relax are almost as important as food in preventing fatigue of women workers.

The preceding data on maximum hour, day of rest, and night-work and meal period laws relate to the basic provisions of these laws. The following states have suspended operation of some or all of these provisions for all employees in certain industries for the duration: California, Indiana, North Dakota, and Texas. In many other states, emergency provisions—either contained in the hour laws or existing independently of them—have been invoked by state labor departments for the purpose of authorizing individual employers to employ women longer hours during short emergency periods. The procedure in effect in most States is as follows:

(1) The employer makes a request to the state labor department for exemption from specified legal provisions during an emergency period; (2) The state labor department investigates the need for an exemption, looking into such factors as labor shortage, training facilities, efficiency of operation. If the exemption is granted, it applies only to specified employees and operations and is of limited duration. To date, the states in general have confined the granting of exemptions to war-production industries. All of the states have granted night-work exemptions in these industries. Few states have relaxed provision of the day-of-rest laws to permit 7-day continuous operation.

Laws Regulating Working Conditions

At the request of ODT, in August 1942, the Women's Bureau drew up

* Length of lunch hour varies by occupation in Delaware, Maine, New York, Washington and Wisconsin.

recommended working condition standards for the employment of women in specific types of work in the transportation industry. In the bus transportation field, the bureau believes that operation of intercity buses, or of local buses in congested metropolitan area, is a suitable occupation only for women of exceptional physical strength.

Operation of a bus requires great muscular strength and is a very heavy job even for a man. If it becomes necessary to use women in this type of work, special medical examinations should be given. Where women are employed in this capacity, the following health needs should be met:

1. Need for good posture seats;
2. Need for regular hours, regular meal periods, regular shifts;
3. Need for adequate facilities for rest and food at terminals.

Standards recommended by the bureau for shop work may be briefly summarized as follows:

1. Prevention of accidents through (a) machine guarding; (b) good plant housekeeping; (c) instruction in safe practices.
2. Adequate protection against hazards of fumes.
3. General plant sanitation including: (a) Adequate washing facilities; (b) adequately equipped lunch room, dressing room, and rest room; (c) sanitary drinking facilities; (d) separate toilets for women; (e) ventilation.
4. In-plant medical supervision.
5. Avoidance of strain through: (a) installation of lifting devices; (b) instruction in safe methods of lifting; (c) physical examinations related to type of work.

The Women's Bureau is prepared to furnish employers with detailed information on training women workers in safe methods of lifting.

Weight-Lifting Laws and Regulations

Laws incorporating working conditions standards as outlined in the preceding paragraphs and recommended by the Women's Bureau, usually apply equally to men and women. However, with respect to weight-lifting, states have recognized that women are peculiarly subject to injury and special restrictions have been set up surrounding women's employment at work of this kind.

In California, Massachusetts, Michigan, Ohio, Oregon, Pennsylvania, Utah and Washington, women may not perform tasks that involve the lifting or carrying of heavy weights.

Laws which apply to women's employment in bus transportation set specific maximum loads as follows:

California:
25 pounds maximum for lifting;
10 pounds up and down stairways of 5 feet or over.

Michigan:
35 pounds maximum for lifting;
20 pounds ascending stairs.

Ohio:
25 pounds maximum for lifting.

Oregon:
25 pounds maximum for lifting;
15 pounds for carrying more than 10 feet.

Utah:
30 pounds maximum for lifting;
15 pounds for carrying.

Prohibited Employment for Women

Six states (Connecticut, Massachusetts, Missouri, New York, Vermont, and Washington) by law prohibit the employment of women for a specified period before and after childbirth. The period during which women may not be employed is 4 months before and 6 weeks after childbirth, in Washington; 4 weeks before and 4 weeks after, in Connecticut; 3 weeks before and 3 weeks after, in Missouri; 2 weeks before and 4 weeks after, in Massachusetts and Vermont; and 4 weeks after, in New York.

Nine states (Colorado, Kansas, Michigan, North Dakota, Oklahoma, Oregon, Pennsylvania, Washington and Wisconsin) prohibit the employment of women under conditions variously described as detrimental to their health, safety, morals or welfare.

Laws prohibiting women's employment in one or more specific occupations are found in all except 22 states and the District of Columbia. The states in which no such prohibition exists are: Delaware, Florida, Georgia, Idaho, Iowa, Kansas, Kentucky, Maine, Mississippi, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, and West Virginia.

In the 26 states that have laws prohibiting employment in specific occupations, the occupation most commonly prohibited for women is mining. Prohibitions which appear to have some application to the bus transportation industry may be summarized as follows: (1) Cleaning moving machinery: prohibited for women in Louisiana, Minnesota, and Missouri; (2) Trucking: prohibited in Ohio and Pennsylvania; (3) Employment as express driver, baggage handler, freight handler: prohibited in Ohio; (4) Work on moving abrasives: prohibited in Michigan, New York and Ohio.

The present discussion of the application of labor laws to employment of women by bus companies has been concerned solely with state laws. Bus companies engaged in interstate commerce will undoubtedly have a further question: How the employment of women in occupations covered by regulations of the Interstate Commerce Commission under the Federal Motor Carrier Act of 1935 (U. S. C. Title 45, Ch. 8) will be affected by state labor laws for women.

Although the Interstate Commerce Commission is authorized under that act to establish maximum hours for all employees whose activities affect the safety of operation, to date the commission has regulated hours of service only for drivers and helpers. There is no question but that state hour laws for women would apply to occupations for which the commission up to this time has not issued regulations.

The Women's Bureau has made a special study of the application of state laws to the interstate commerce field, and would be glad to receive questions and comments from employers interested in having more detailed information concerning this subject, or concerning any standards or laws discussed in this article.

The accompanying tables show the extent of coverage of women in the bus transportation industry by state laws. Full particulars on this subject may be obtained from the appropriate State Department of Labor or from the Women's Bureau, U. S. Department of Labor, Washington, D. C.

Coverage of Specific Occupations

(The first figure in each column indicates Hours Per Day; the second figure, Hours Per Week; and the third figure, Days Per Week)

	Mechanical	Workshop	Office	Cleaners	Janitors	Restaurant	Telephone	Telegraph
Colorado	8	.....	.....	.....	.....	8-48-6	.....	.....
Kansas	.....	.....	.....	8-48	8-48	8-48	.....	.....
Montana	8	.....	.....	.....	.....	8	8	8
New York	.....	8-48-6	.....	.....	.....	8-48-6	.....	48-6
Pennsylvania	.....	.....	.....	.....	.....	48-6	.....	.....
Oregon	.....	.....	8-44-6	8-44-6	8-44-6	8-44-6	8-44	8-44
Washington	8	.....	8-48-6	.....	.....	8 6	.....	.....
Wyoming	8-48 (12-hr. overall day)	.....	.....	.....	.....	8-48	.....	.....
Maine	9-54	9-54	.....	.....	.....	.....	.....	.....
Michigan	.....	9-54	9-54	.....	.....	9-54	.....	.....
Rhode Island	9-48	.....	.....	.....	.....	.....	.....	.....
Vermont	9-50	.....	.....	.....	.....	.....	.....	.....
Virginia	.....	9-48	.....	.....	.....	9-48	.....	.....
Delaware	10-55-6	.....	.....	.....	.....	10-55-6	10-55-6	10-55-6
Indiana	10-6	.....	.....	.....	.....	.....	.....	.....
Kentucky	10-60	.....	.....	.....	.....	10-60	10-60	10-60
New Hampshire	10½-54	.....	.....	.....	.....	.....	.....	.....
New Jersey	.....	.....	.....	.....	.....	10-54-6	.....	.....

May 31, 1943

Dean L. B. Kinney
School of Education
Stanford University, California

My dear Dean Kinney,

We have received, through Mrs. Eurich of the Educational Services Division of O.W.I., certain questions regarding women and their employment in industry, on which you would like help, and as far as we have information compiled (from various government agencies whose main function is estimating supply and demand) we shall be glad to answer them. I am going to offer general comments as well.

In answer to your first question, about present employment possibilities for women, recent estimates show nearly 2 million more women are going to be needed this year, but two out of three of them will be needed in essential civilian industries. In other words, they will be in industries like food processing, clothing, lumber, transportation (railroads and airlines, motor buses), telephone and telegraph, public utilities - and also they will be the waitresses, laundry workers, hotel maids, clerks and attendants of all kinds, taking the place of men in grocery stores, filling stations, etc., and replacing women who have moved on to jobs in war plants. We have no breakdown of figures to show this distribution of need among industries, other than the general manpower estimates enclosed.

As to where they are to be found, relatively few of the unemployed women, still without jobs, will be "employable," and while some thousands of girls just out of school will come into the labor force this June, most of the women needed will have to be recruited from among the housewife population groups.

There are 42 city-areas where the labor shortage is "acute" and 97 more where <u>within</u> 6 months it is anticipated there will be a definite shortage. In 66 city-areas a general labor shortage may be anticipated <u>after</u> 6 months; and at present there are 73 areas where the labor supply is and will continue to be adequate. The War Manpower Commission is the source for these statements, and we are asking the O.W.I. to send you the entire list of these areas (it is the release numbered "PM-4391" and possibly the library already has a copy).

This is the general picture of woman employment and shortage areas. I note however your interest is in increasing further the number of women taking training courses in mathematics and science. I presume you are

consulting the university's representative for the Engineering-Science-Management-War-Training program as he would have very specific information. You are probably also in touch with the War Manpower Commission regional representative in San Francisco; he should have the figures compiled by the National Roster of Scientific and Specialized Personnel regarding estimated needs for women trained in these fields; these figures were secured for senior college students and college graduates, but I think you will find them very useful. These are the only statistics along this line that are available.

Roughly stated, the demand and supply of trained women today would fall into three categories: (1) unlimited demand for those who have had training in specific fields, notably mathematics, the physical, engineering and medical sciences; (2) great demand for those who have had training in other fields, especially if they add supplementary training in the fields just mentioned (the biologist and botanist should have something extra in bacteriology and pathology, artists cannot be turned into camouflage experts without some training in engineering, etc.); (3) limited demand for those whose training has no obvious relation to the immediate demands of the war program for technical personnel.

It is our understanding that practically all colleges and high schools are keenly conscious of the shortage of women trained in certain specific fields, and classes are filled to capacity where local industry has called on the war-production-training program to set up intensive, short-term courses related to their specific staff needs. So far as the West Coast goes, our general belief was that the educational channels were very well geared to the labor shortage categories.

What is more likely true, however, is, not that the teachers are not aware of this trend, but that it is getting more difficult to find women now to enter such courses. During the year 1942 about 2½ million "new" women were absorbed into the labor market over what the 1941 record showed. Women and girls voluntarily seeking war jobs and offering to fill essential-civilian job vacancies were practically all accounted for by the end of 1942. The recuitment problem is more complicated now (excepting the highschool girls and college girls ready to take jobs) so far as women are concerned, because it is mainly the housewife group from which the new complement of nearly 2 million is to come.

Regarding your question as to the permanence of opportunity in each field, this raises many postwar employment problems and expansion of some of these industries. All information coming to the Women's Bureau - reports of conferences, personal statements of industry officials visiting the Bureau, news items of speeches, etc. - seem to point to the fact that in these scientific and technical fields it is up to the woman as

to how far she will go - remembering of course that most of the training given, now, prepares one merely for "scientific aide," "technician," "laboratory aide," etc. Where a woman has specialized in one of these fields to the extent that she has a college degree and even a graduate degree, she could go far. The main point here is that she choose a job in that particular branch of her field that has future possibilities - in chemistry, for instance, it might be a plastics company she would prefer to be with. A laboratory director in a large oil refinery stated that he expected the girls he had selected with such care, and who had been given training by him, would remain in their jobs - although until the war came, only men had been used.

Your question as to type of training or preparation needed in each field is best answered through the NSMWT faculty representative. It is usually determined by the individual companies requesting such trained persons. Perhaps you know also that many companies are selecting girls, putting them on the payroll, and then sending them to training courses. A brief account of this will appear soon in a pamphlet the American Council on Education is issuing.

If you have not seen the report of the conference held by the A.A.U.W. this spring, and what is available from the conference held by the Institute of Women's Professional Relations (the full proceedings are not yet obtainable), also held this spring, you will find useful information along the lines of scientific and technical needs of industry.

I hope these answers to the questions submitted to us do not duplicate what you have already secured. The Women's Bureau has not made a survey of technical needs of industry, so far as employment is concerned, but we are following closely all information appearing on this as well as on other subjects. Our principal work in this war period comprises surveys of war plants determining on what jobs women can be used and how extensively their numbers can be increased, and advising on working conditions for them. To date we have made occupational surveys of aircraft, artillery ammunition, instrument-making, cannon and small arms, and machine-tool industries. At present we are making a survey of women's jobs in shipyards. We have considerable information about women in transportation fields, in lumber and timber, in pulp and paper mills, in flour mills, and so on, and additional data are coming to us about woman employment in other industries.

Sincerely yours,

rfn

Mary Anderson, Director

RESEARCH DIVISION

June 25, 1942

SUMMARY OF REPORT FROM SOCIAL SECURITY BOARD
(High spots selected at Miss Anderson's request)

EMPLOYMENT OF WOMEN IN WAR PRODUCTION
(May 1942; data for March; received in Women's Bureau middle of June. Women's Bureau has had this and later material as well.)

The United States Employment Service has "thoroughly investigated the problem of the employment of women in war production."

One and one-half million women are registered for jobs and a nation-wide registration is not needed soon.

Training should be begun immediately for women especially in the skilled and professional occupations requiring a year or more of training time, since needs will develop in 1943 and 1944.

More rapid demand for women is expected at the end of 1942; until that time men will continue to be employed more rapidly than women.

Reports from 12,500 war plants expecting to hire 676,000 persons stated that in 68 percent of the occupations women will not be employed at least before July. Over 80 percent of the openings that will take women are semiskilled and unskilled jobs. Women will be employed in munitions, aircraft, and electrical machinery.

Women have constituted less than 5 percent of those enrolled in pre-employment defense training. When women are in demand they can be trained quickly since over 60 percent of the hires in war plants will be for jobs requiring less than 6 months' training.

The Employment Service can assist in gaining greater acceptance of women by employers in occupations formerly held by men, in localities where labor is short. Jobs must be broken down, workers upgraded, and women trained to fill the new jobs.

The report summarizes information for 1914-1918 from Women's Bureau Bulletin 12.

The report gives a brief summary as to Great Britain and Germany where women were extensively employed as shortages of male labor developed.

The report summarizes certain 1940 census data as to women and estimates that about 13 million women can be made available for employment. (P.11)

The report refers to community nurseries and part-time work in Great Britain and states that special part-time shifts are not yet necessary in this country. It states that sanitary work conditions are another means of encouraging entrance of women. It summarizes laws for women, using the table from Women's Bureau Bulletin 156-I.

The report summarizes placements of women in 1940 and 1941 and registrations through March 1942.

The report considers type of jobs for which women are fitted and stated that a California survey by the Bureau of Employment Security shows the following advantages of the employment of women by new firms:

1. Women are easier to supervise.

2. Labor turnover was noticeably decreased.

3. Men employees made little objection after the first introduction of women.

4. With the same training and experience as men women could be transferred as readily, even at difficult machines.

5. Accidents had decreased appreciably.

6. Damage to tools and materials was considerably less. (Especially on small drill presses and in the use of small drill parts.)

MKP:ld

WOMEN IN THE WESTERN LUMBER INDUSTRY

In general, women for some years have been employed in some West Coast lumber and Plywood mills. In logging camps it has been for some time customary to employ women as waitresses in the dining halls. In the lumber mills, the employment of women in pre-war times was usually limited to the planing mill and box factory departments where only light handling was included. Usually the jobs involved such tasks as sorting, assembling, bundle-tying and helping, but not machine operation.

A significant feature about employment of women incidental to war has been the great expansion of variety of jobs. These new jobs have involved in some cases heavier physical exertion, the assumption of individual responsibility, operation of machines, and "dirty" operation involving contact with grease, paint, sawdust, etc.

In general, the women have done suprisingly well in those posts to which they have been assigned. The general pattern, insofar as I have observed, has been to extend the employment of women outward into the general mill from the planing mill or the box factory. Often, those women who have acquired a general familiarity with the industry in these departments have been drawn upon to staff the new jobs, and their vacated positions have been filled with new women employees.

Employment has by no means been confined to any one type of woman. There have been young high school graduates, college girls working in off seasons, soldier's wives, housewives, big-boned middle-aged women, and even a few elderly women. They have come from many different kinds of homes. One sees red finger nail polish and stylish slacks and heavy leather gloves and coveralls.

The percentage of women employees varies considerably with the different plants. In some lumber mills, now approximately 20 per cent of the employees are women.

Here are some of the jobs they are doing:

End painting; pulling lumber (dry and green) from chains; assembling bundles; tying bundles; tallying; helping on edgers, trimmers, re-saws, end matchers, and gang saws; operating conveyor control, boring machines, yard locomotives (diesel and electric), overhead cranes; helping at dry kilns; grade marking, log scaling; picking orders.

No standard uniform has been adopted by Western mills, but slacks with jacket or sweater are almost universally popular, with occasional deviation to denim overalls or coveralls. Managements have insistently cautioned against loose clothing, urged low, flat heels on comfortable shoes. But attempts to standardize women's hair and head coverings have met little success. A great many women seem to prefer to work bareheaded, even if sawdust is flying in the air.

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

THE EMPLOYMENT OF AND DEMAND FOR WOMEN WORKERS IN THE MANUFACTURE OF INSTRUMENTS—AIRCRAFT, OPTICAL AND FIRE-CONTROL, AND SURGICAL AND DENTAL

November 1941

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THE EMPLOYMENT OF AND DEMAND FOR WOMEN WORKERS IN THE MANUFACTURE OF INSTRUMENTS— AIRCRAFT, OPTICAL AND FIRE-CONTROL, AND SURGICAL AND DENTAL

INTRODUCTION

The manufacture of aircraft, fire-control, and surgical and dental instruments is important in defense production. Manufacturers of these instruments have expanded their plants and organizations; new plants have been opened; and contracts and subcontracts have been awarded to plants whose machinery and organization are of a kind adaptable to small metal and instrument manufacture.

Aircraft instruments for indicating, measuring, recording, or controlling the flight and navigation of an airplane are a vital link in the aircraft industry even though their manufacture is not so spectacular as that of the engines and planes. The same is true of fire-control instruments, which are predominantly optical instruments such as panoramic sights, gun sights, periscopes, telescopes, and binoculars used for controlling the aiming and firing of guns, torpedoes, and bombs. Many of the fire-control instruments are of a secret character built for special naval and military requirements. Surgical and dental instrument demands have increased to supply the medical units of the Army, Navy, and Air Corps, and since Germany, formerly the principal source of surgical instruments, has been cut off the market, impetus has been given to domestic manufacture to supply the needs of foreign and home buyers as well as the new demands of the defense program.

Most instruments are relatively small, light in weight, made up of many intricate parts and assemblies so that direct labor employed is a primary factor in production cost. The light work, the many small parts, and the painstaking requirements of certain operations make instrument manufacture a field especially adaptable to the employment of women.

Scope of survey.

Eastern States have most of the instrument plants, with a few in the mid-West but practically none in the South and West. Seventeen factories in New York, New Jersey, Pennsylvania, Illinois, and Minnesota manufacturing aircraft, fire-control, and surgical and dental instruments, and related electrical parts, were visited to observe the work and the possibilities of employing women. The number of factory operatives ranged from approximately 100 to 6,000; the number of women employed was from 6 to nearly 1,400, with the proportion of women varying from about 3 percent to almost 50 percent of the total.

Minimum-wage rates and daily work-hour shifts.

Minimum hourly rates paid to women ranged from 35 to 55 cents, with 40 cents the most frequently reported, while for men the range was 40 to 61 cents, with 55 cents the most common.

All but 2 plants had more than one shift for the workers, with the numbers employed decreasing materially on the second and third shifts. At the time of survey, 8 plants had two shifts and 7 had three. Women predominantly were employed on the first shift, and in only 3 plants were a small proportion of women working on the second.

SUMMARY

In normal times, the manufacture of instruments of the types covered was on a relatively small scale, and much of the production of aircraft and fire-control instruments was on a constantly changing and experimental basis. For many years, machining and assembly were done almost entirely by men classed as all-round skilled instrument makers. But with increased production, jobs have been broken down and women employed to a considerable extent. The proportion of women and the jobs on which they are employed, however, differ materially from plant to plant. In some plants women are working satisfactorily on machine and assembly operations, while for the same jobs in other plants women have never been considered. In the sections of this report dealing with each type of instrument—aircraft, fire-control, and surgical and dental--the actual work being done by women is discussed. The summary presented here is merely indicative of the kinds of work being done and the feasibility of extending the employment of women on the various processes.

Summary of Principal Operations and the Employment Opportunities for Women in the Manufacture of Aircraft, Optical and Fire-Control, and Surgical and Dental Instruments

	Sex of present operatives (M-male F-female)	Extension of women's employment
AIRCRAFT INSTRUMENTS		
Assembly and Bench Work		
Mechanism subassembly	M and F	Proportion could be increased.
Mechanism final assembly	M and F	Ditto.
Special assemblies:		
Diaphragm	M	Could be used entirely.
Pitot tube	M	Slight probability of using.
Gyro motors	M and F	Proportion could be increased.
Autosyn electric motors	M and F	Ditto.
Closing of instruments	M and F	Could be used entirely.
Testing and Inspecting		
Parts inspection	M and F	Proportion could be increased if trained or upgraded from instrument-assembly operations.
Calibrating	M and F	
Electrical tests	M and F	
Cold, vibration, and run tests	M and F	
Final instrument inspection	M	
OPTICAL AND FIRE-CONTROL INSTRUMENTS		
Optical Work		
Blocking	M and F	Only a few women are used on single-spindle blocking and polishing.
Grinding	M	
Polishing	M and F	
Centering	M and F	With training, women could be used or proportion might be increased on all operations.
Cementing; engraving; etching and silvering	M and F	
Cleaning and inspecting	M and F	
Assembly and Bench Work		
Range and height finders, panoramic sights, periscopes, plotting boards, quadrants, sextants, octants, etc.		
Minor subassemblies	M and F	Subassemblies made by women are very minor and not much possibility of increasing proportion.
Main assemblies	M	
Binoculars, telescopes, aircraft sights, and small gunsights		
Mounting, cleaning, and inspecting optical parts	M and F	Proportion could be increased.
Sighting, adjusting, collimating, calibrating, etc	M	With training, women could do in part.

 Summary of Principal Operations, etc.—Continued.

	Sex of present operatives (M-male F-female)	Extension of women's employment
SURGICAL AND DENTAL INSTRUMENTS		
Assembly and Bench Work		
Forceps, pliers, retractors, etc.	M	Slight probability of increasing proportion.
Dental stands and chairs:		
Minor subassemblies	M and F	
Main assemblies	M	
Dental hand pieces and fittings	M and F	Proportion could be increased.
Clinical thermometers	M and F	Women employed extensively.
Special Machining of Dental Burs and Broaches	M and F	Women employed extensively.
GENERAL OPERATIONS APPLICABLE TO MOST INSTRUMENTS AND SMALL METALS PRODUCTION		
Heavy Duty Machines		
Drill presses	M and F	Proportion could be increased.
Punch presses	M and F	Ditto.
Milling machines	M and F	Ditto.
Metal polishing and grinding	M	Not suitable for women.
Turret lathes	M	With extensive training women could be used on lighter machines. Otherwise, probability slight.
Engine lathes	M	
Hand screw machines	M	
Automatic screw machines	M	
Gear cutters	M	
Secondary or Light Machines		
Bench, watchmakers' lathes, etc. (turning, buffing, burnishing, burring, lapping, etc.)	M and F	Women employed quite generally and they could do more of light work.
Micro-milling	M and F	
Sensitive drill press	M and F	
Small automatic screw	M	Slight probability without extensive training.
Hand and Machine Burring	M and F	Proportion could be increased.
Machine-Shop Inspection	M	Slight probability of employment.
Painting		
Spray	M and F	Proportion could be increased.
Touch-up and brush	M and F	Women employed extensively.
Fill-in	M and F	Ditto.
Radium	F	------
Graduating and Engraving	M and F	Proportion could be increased.
Heat Treating, Plating, and Anodizing	M	Not suitable.
Inspecting, Cleaning, Wrapping for Stock and Shipment	M and F	Proportion could be increased.

Training.

In Great Britain special training courses have been offered to women as well as men in the making and fitting of instruments. Instruction covering both theory and practical application is provided in correct use of tools, gages, calipers, verniers, micrometers, and in blueprint reading, soldering, buffing, drill presses, lathes, gear cutters, milling, precision fitting, and bench assembly. In the United States, in the defense training program in most of the cities visited, general courses in machine-shop practice and assembly were open to relatively few women. Only two plants had courses of study and specific training programs as formal instruction for employees, and in one plant only men had been admitted because the training was given primarily as part of an upgrading plan and the policy was not to consider women as parties to job progression beyond unskilled repetitive work. In all other plants, training was on the job. Many of the beginning jobs in the machine shop, assembly, and inspection sections are closed to women, as these operations are regarded as the beginning step for young boys who progress to more skilled work.

Attitudes with reference to the employment of women.

Three plants that employ women on a variety of operations and in relatively large proportions have the most open-minded attitude toward increasing employment possibilities for women. Though most of the work on instruments is light, and little is beyond the physical capabilities of women, the prejudice and attitude of many in managerial positions is hedged against women. In the plants with a small proportion of women employed there is often an expression of opinion that men and women cannot be employed on a coworker basis. Ideas are expressed that mixing men and women in the shop may disrupt the morale and discipline; men do not like to have women around, as in some way their work freedom is curbed. In plants where the proportion of women is large, or where women have been employed a long time, no mention is made of disciplinarian problems.

Though most of the plants have never offered any special training to women for job progression and upgrading, have never tried to give women training or responsibility for set-up of machines and have limited their work to unskilled repetitive tasks, the generalization often is made that women have no mechanical ability, interest, or aptitude. In a few plants where women are given the responsibility, some set up their machines. England has many examples of women setting up and operating machines and working on all types of materials.

Even where much of the work is on a quantity basis with specialization in jobs, the all-round skills and flexibility of men are emphasized as imperative. Flexibility in the working hours and the ability of men to hold up against long hours and heavy work frequently are mentioned even when most of the employees work on an 8-hour day shift and very little of the work requires strength. Along these lines is an expression of opinion that to employ women on jobs that might involve any hazards of maiming or disfiguring the worker is an undesirable policy because injuries to women

are regarded with greater concern by the community and may result in antagonism toward the management. British experience, however, has shown a decreasing accident rate on certain machine jobs where women have replaced men.

The problem of providing additional service facilities such as toilet, wash, and cloak rooms looms unduly significant to some employers even where new buildings and equipment are being provided in the expansion program and the inclusion of special facilities for women could be planned. Inquiry has been made recently in the East as to the cost of providing toilet and washing facilities for 100 women. The estimated cost for 5 toilets, 5 lavatories, soap, towel containers, and so forth, partitions, painting, and installation was $479, or an average of about $5 a woman.

The various anti-woman-employing attitudes expressed by management are premised largely on tradition and fear of innovations in personnel set-up.

AIRCRAFT INSTRUMENTS

Twenty-five years ago, at the time of the first World War, flying was relatively in a preinstrument stage, the flyers being guided largely by direct observations of land marks, the feel of the wind, the visible horizon, and the sense of gaining speed and height. Today the instrument panel of the modern airplane is covered with a maze of dials to guide the pilot. Instruments usually are grouped according to their function. The four principal follow: 1/

1. The primary flight group includes the air-speed, turn-and-bank, and rate-of-climb indicators.

2. The secondary flight group includes the altimeter, artificial horizon, or gyro-horizon, and directional gyro.

3. The engine instruments include oil and fuel pressure gages, suction gages, tachometers, temperature gages, electrical indicating systems, and so forth.

4. Auxiliary instruments comprise those concerned with the recording of the functioning of auxiliary apparatus, such as landing-gear-position indicators, flap-position indicators, outside-air-temperature indicators, and related electrical systems.

Aircraft instruments are all small and light in weight, most of them weighing less than 2 pounds, and as such their manufacture is chiefly light work, much of which is adapted to the employment of women.

1/ Patton, Orion Edward, Aircraft Instruments, 1941, pp. 171-172.

Until the present defense program the manufacture of aircraft instruments had been almost entirely an occupational field for men. The all-round instrument maker was distinguished in that he could machine, assemble, and adjust an entire instrument. Aircraft instruments are now being made in relatively large quantities and the operations have been broken down in the machining, assembly, and adjusting processes. Many of the instrument workers who have come into the industry during the present defense period are young, inexperienced employees; some are, and more might be, women.

Machining of aircraft instruments.

The regular standard machine shops of the aircraft instrument plants hire only a very small proportion of women employees. The women are employed almost exclusively as drill-press operators, except for a few on small punch presses. Many of the punch presses are of the kick-press type, the continuous operation of which is strenuous and not desirable for women. No women are employed on regular lathes, turret lathes, automatic screw machines, milling machines, grinders, gear cutters, and other heavy duty machines. Young men with no experience or only that secured in defense training classes have been hired in the past year for much of the primary machining on milling machines, drill presses, and punch presses, and more of this work might be done by women. The main machine-shop operations on aircraft instruments do not afford employment to nearly so many as the assembly and light machining departments.

Most of the unskilled and repetitive jobs are used as beginning occupations for men who are to be trained as machinists in an upgrading plan. Women have not been considered as potential trainees in a long-time program. In most places, tradition and attitude are against the employment of women. The oiliness of the work, the hazards of cuts, are emphasized; and the prevalent idea that women lack interest in and mechanical aptitude for machine-shop work is most marked. British industries are reporting the employment of women machine-shop workers who set up their own machines to drawings and operate all types of machines for grinding, turning, boring, milling, threading, tapping, reaming, and forming on hydraulic presses. In the plants visited in the United States the most accepted possibilities of increased employment of women from a management point of view seemed to be on drill presses and punch presses, the opportunities on the first being the greater.

Floor inspection in the machine shop was done by men who were skilled mechanics able to give advice as to set-up and machining. Hand and machine burring of machined parts was done largely by men, but a few women were used to a limited extent. Apprentices often are started on this type of work and it might be a beginning job for women in machine-shop operations.

Apart from the main machine shop, there are many secondary or light machining operations frequently related to assembly and often accompanying progressive steps in the building up of an instrument. The machines used on these operations are small sensitive drills, bench

lathes, watchmakers' lathes, small automatic screw machines, micro-milling machines, burring, burnishing, buffing, and lapping machines, gear hobbers, and so forth. On these smaller machines more women are employed and their numbers might be increased materially. In several plants men and women are operating the same kinds of machines, but often the men are reported as doing precision work on turning and fitting operations that require changing set-ups and more diverse skills. Much of the work of machining, polishing, lapping, and drilling on the lighter machines is for the small internal mechanism of instruments, such as pinions, rocking shafts, gears, and fittings. The work is held to fine tolerance—often in ten-thousandths of an inch—and gages, microscopes, and micrometers are used in checking the progress and accuracy of the work.

In a high-grade British instrument factory, women set up and operate Mikron capstan lathes and Mikron gear hobbing machines, and check tooth profiles and make necessary adjustments. They work with micrometers and to tolerances of 2 and 3 ten-thousandths of an inch.

Aircraft instrument assembly and bench work.

Most of the pressure-actuated instruments consist of a metal or plastic case, bezel or snap rings, front glass, dial, pointers, and the internal mechanism, which includes a diaphragm assembly, rocking shaft assembly, hand staff assembly, sector assembly, wheel and hair spring assembly, bearing plate, balance arm, and mechanism frame.

Diaphragms made of paper-thin corrugated metal discs are a part of all instruments where pressure is the activating element. The contraction and expansion due to variations in pressure are relayed to the dial indicator. If the diaphragm is defective, the entire instrument must be disassembled or scrapped. So, great care is given to its manufacture and assembly. In 3 factories where diaphragm instruments are assembled, the work is carried on in a small separate department, and the operatives work interchangeably on several jobs. Blanking and corrugating of the discs are press operations, which require care in handling the metal so that it is not stretched. Next, the discs are seasoned in hot baths of oils, soldered, evacuated, and tested for leaks and sensitivity. Women do soldering, but all other operations are done by men in the aircraft-instrument plants. However, in a plant manufacturing pressure instruments but not for aircraft outlets, women are making the diaphragms in their entirety.

Special apparatus such as the Pitot static tube has been developed for controlling the intake of air actuating the diaphragm. The manufacture of the Pitot tube is done entirely by men and involves chiefly torch soldering, assembly of small tubing, filing, plating, and polishing. Much of the work is varied and heavy, and with the small numbers employed there would be little need or possibility of women's employment.

Most women's jobs on aircraft instruments are on the mechanism subassemblies involving use of hand tools such as pliers, soldering irons, tweezers, files, hand mallets, screw drivers, hand drills, bench fixtures, and machines such as arbor presses for staking and riveting,

small polishing, lapping, and buffing machines. With these operations there frequently is accompanying inspection using microscope, jeweler's loupe, and gages.

Women in one of the three largest aircraft instrument factories do practically all the work on the rocking shaft subassembly, hair springs, sector assembly, balance arm, and other mechanism subassemblies, including staking jewels into plates, assembling small bearings, staking counterweights to dial pointers, soldering small parts, putting in pivot screws, and so forth. In the other large aircraft instrument plants women are doing a share of these subassembly operations but the majority of the subassemblers are men. As the force expands in all the plants the proportion of women is to be increased, and an estimate was made that they could do at least 75 percent of the assembly work.

The final assembly of an instrument is akin to watchmaking—installing the subassemblies such as the diaphragm, rocking shaft and sector; aligning and fitting parts to close tolerances; adjusting jewels, checking friction, checking end play, and making other necessary adjustments. This work is the sphere of the all-round instrument maker and so far has recruited experienced men or developed them from subassemblers by an upgrading program.

The final assembly of the mechanism calls for a high degree of skill and responsibility, a thorough knowledge and understanding of the use of the instrument being constructed, and a practical knowledge of the field in which the instrument is being used. Only 2 women in the aircraft plants visited were reported as final assemblers and all-round instrument makers capable of all assembly processes. Women might constitute a substantial part of the final assemblers if they had the training, experience, mechanical aptitude, and interest, and if management were open-minded to the possibilities of employing them.

After the mechanism has been assembled, the installation into the housing or case follows, and women are employed extensively on the closing operation. They clean and assemble the dials, pointers, and front glass, put in the gaskets, bezel or snap rings, install the end fittings, and attach the name plate.

Instruments with fewer parts and simpler mechanisms, such as the compass, tend to employ a larger proportion of women in assembly. One firm with a separate department for manufacturing the magnetic compass uses almost 50 percent women on this assembly. Women are on the usual repetitive jobs of subassembly category, soldering, peening, screwing, and adjusting parts and fittings. Final assembly was carried on almost entirely by men.

Testing and inspecting aircraft instruments.

Inspecting and adjusting are concomitant in much of the assembly work. Women as well as men do testing along with assembly. For instance, in the assembly of magnetic compass (simpler than gyro-compass) both men and women balance spider cards—the revolving graduated scale for weight

distribution. Women are checking the magnetization of compass balance bearings on a special projecting and enlarging device. The final setting and adjusting of the compass is considered a most skilled job and is done by men.

Cold tests, vibration tests, and compensating bath tests employ only a few men, who work interchangeably at all operations and most of whom know how to make the necessary adjustments on a variety of types of instruments.

Calibration covers testing, adjusting, balancing, and measuring the performance of instruments according to definite standards. Calculations and computations for adjustments may be necessary and the calibrator of the more intricate instruments needs a working knowledge of mathematics and principles of physics involved. In all but one of the plants visited, the final testing of aircraft instruments was carried on solely by men; in the one exception a woman was calibrating suction gages, which are among the simpler instruments. She had been employed in a watch factory and was said to have exceptional mechanical ability. Many of the men calibrating were reported as having years of experience in instrument making or as holding degrees in mechanical engineering. The opinion was expressed that if there is quantity production of one type of aircraft instrument, women might be trained in 3 to 6 weeks to do calibrating of some types of instruments.

Inspection of incoming parts and those in process employs both men and women, the latter working on the simpler gage and visual checking. Of course women could do more of the inspection. Men usually are employed on metal hardness testing, checking with verniers, calipers, blueprints, and where mathematical computations are involved.

In a large instrument plant that manufactures navy and commercial barometers, automobile altimeters, and compasses similar to certain of the aircraft instruments, women have been employed extensively for many years. In fact, women assembled aircraft altimeters in this plant in the war of 1914-1918. At the present time practically all assembly on commercial barometers, hygrometers, and altimeters for automobiles is done by women. The assembly of many of these instruments involves installing a diaphragm, hair springs, shafts, pinions, dial indicators, and so forth, all similar to operations on aircraft instruments. Women are calibrating these instruments also, and one woman with years of experience calibrated navy barometers.

Similarly, in a mass production plant that specializes in the manufacture of instruments for the panel boards of automobiles, women are assembling ammeters, oil and pressure gages, speedometers, and other instruments on a line assembly and testing for end play and leaks, making final adjustments, and calibrating. Men are serving as group leaders and set-up men. The tolerances on such instruments are not so close as on aircraft, but the operations are similar and there is no reason for assuming that women could not develop the skill necessary to do similar operations on the more delicately adjusted aircraft instruments.

Gyroscopic aircraft instrument assembly.

Another group of instruments are those based on the gyroscopic principle, that is, a spinning wheel mounted and suspended in such a manner that it is free to rotate about any axis, maintaining a fixed position irrespective of the oscillations of the plane. The instruments important in blind flying and automatic piloting of a plane are the gyroscopic compass, the directional gyro, the turn-and-bank indicator, and the artificial horizon.

Two plants visited are making this type of instrument. In the plant of the largest manufacturer of gyroscopic instruments women comprise less than 10 percent, while the other has a considerably larger proportion. In a British plant, women with high degrees of skill are reported as operators of lathes and milling and grinding machines, as assemblers, balancers, and testers of fine gyroscopic instruments with tolerances and limits as close as 2 ten-thousandths of an inch. 2/ In the main plant of this same company in the United States, women assemblers are classed as unskilled repetitive workers. The women are on light bench jobs assembling rotor housings, centering rotors into the gimbal, making minor hand adjustments, cleaning bearings, lapping shafts, pivots, and bearings, and using microscopes for inspecting the parts being lapped. All the actual instrument assembly is done by men and the job of a first-class assembler is described as follows:

> Plans and lays out assembly work from blueprints or samples and develops new ideas for simplifying and improving such work. Has a thorough knowledge of machine-shop mathematics. Assembles all types of subassemblies and main assemblies without the use of jigs and fixtures. Skillful in the use of all types of precision measuring tools and indicating devices. Skillful in soldering, filing, fitting, scraping, reaming, pinning, lapping, drilling, turning, milling and other bench and machine-tool operations required in precision assembly. Able to meet production standards in quantity and tolerances.

In a firm manufacturing turn-and-bank indicators women do a major part of the assembly work, such as mounting the gyro motors (until recently done only by men), oiling shafts and putting bearings in the gyro frames, and installing the inclinometer and pointer or indicator assembly.

Again there is no doubt that, if afforded the same training opportunities as men, women could comprise a much larger proportion of the workers.

Testing and inspecting gyroscopic instruments.

Gyroscopic instruments, like other aircraft instruments, are checked in process of assembly, women doing practically all the testing on the smaller rotors being assembled into the gimbal ring, including testing of

2/ Engineering Bulletin of the Ministry of Labor, August 1941.

spring tension, making run tests to ease parts, and vibration tests to detect the slightest friction in movement. Men do the assembly and inspection on the larger and more complicated rotors. Men also balance the rotors on an automatic balancing machine, a job that women might do. Prior to calibrating the directional gyro and artificial horizon women are visually inspecting and cleaning the cases, dials, dial glasses, and internal mechanism. They also check the drift and make simple adjustments on directional gyros, and calibrate and adjust artificial horizons, both these operations requiring approximately 3 to 5 months' training to attain proficiency in making adjustments to close tolerances. The final testing and calibrating is done by men, many of whom have had training in engineering and are able to make a complete visual and mechanical inspection using varied testing equipment.

Electrical indicating systems.

Engine control instruments such as tachometers, manifold pressure gages, oil and fuel pressure gages, temperature gages, and electrical thermometers, and auxiliary instruments for designating the position of wing flaps, landing gears, wheels, cowl flaps, frequently are dependent on electrical transmission for their indications. Many are tied up with a self-synchronous motor, called an autosyn or telegon, for remote indication of the instrument reading by electrical wiring, which eliminates tubing and mechanical connections and enables multiple indication on one dial.

The autosyn system of remote indicating might be applied to almost any aircraft instrument. It is a combination of transmitting and indicating elements that may be widely separated. A transmitting motor is mounted near the part of the plane whose performance is to be recorded, and the second motor is located on the instrument board controlling the dial indicators or pointers. These autosyns are small fractional horsepower electric motors, and are significant in the manufacture of aircraft instruments. As in the electrical industry, women are employed on much of the work, which is of a machine-shop and assembly nature. Women are employed extensively on drill presses and punch presses and might be used on other machine operations.

Winding of armatures, field coils, and stators; coil taping and forming; assembling armatures and commutators; soldering and connecting wires, and other electrical jobs are done in part by women, and they could do more of the work because of the small size of autosyns. In some plants men are doing much of the final assembly of the autosyn motors but women could share in the work.

Testing of electric indicating systems includes tests for grounds and shorts, break-down tests, electrical accuracy tests, and time response and performance tests. All these are tests for which women might be trained in a short time. At present, most testing jobs of this kind are held by men.

Miscellaneous jobs on aircraft instruments.

Most of the panel-board instruments have luminous dials and indicators to give visibility for night flying. Radium painting is being done entirely by women in the 5 plants manufacturing aircraft instruments. Work benches have individual glass-shielded hoods connected with exhausts; rooms are air conditioned; uniforms are provided and laundered by the firm; periodic physical examinations are given; hands must be washed before leaving the room and are usually examined by the forelady for any particles of luminous paint; and extra clean-up time is allowed at noon and in the evening. The work is painstaking, fine, requiring finger dexterity, and hazardous if prescribed precautions are not respected.

Touch-up painting is quite generally done by women. Stenciling of dials and fill-in painting are other jobs usually held by women. Spray painting, on the other hand, is almost always considered men's work, though women might do it because of the lightness of the parts.

Graduating and engraving.

Pantographs, special engraving machines, and addressing machines, for engraving and imprinting metal dials and name plates, are operated by both men and women. Women might be used on all such jobs.

Other miscellaneous jobs.

Heat treating, anodizing, and plating require only a very small proportion of the total labor force, and the work is varied, heavy, and not advisable for women as all-round workers. In the larger plants women sometimes wire and rack small parts before and after processing, but the number of jobs of this kind is insignificant.

Many of the aircraft instrument cases are made of plastics such as bakelite and all the presses molding these are operated by men. Women undoubtedly could be trained to operate and control temperatures on the new automatic molding machine.

Tool-crib attendants are all men. In the large plants women might be used in keeping records and issuing the lighter tools. Women are used to a limited extent in packing instruments and parts for stock and shipment. More undoubtedly could be employed on such work. Work in the foundry and pattern shops requires skills which would have little value in the general woman labor market and much of it is far too heavy.

OPTICAL AND FIRE-CONTROL INSTRUMENTS

Every heavy gun must be accompanied by auxiliary equipment for controlling its fire, properly aiming the gun and setting the shell fuze. Fire-control instruments predetermine the accuracy and check on the effectiveness of gunfire and aircraft bombing. Fire-control and optical instruments include range and height finders for determining the distance between the gun and the target, periscopes for observing and directing the firing of torpedoes from submarines, gunsights, panoramic telescopes, prism binoculars, aiming circles, azimuth instruments, elevation quadrants, sextants, bubble octants, clinometers, plotting boards, drift sights and drift meters for aircraft, fuze setters, and so forth.

Optical-glass manufacturing.

The largest manufacturer of optical glass for fire-control instruments was visited. Mixing, melting, and the early steps in the manufacture of glass are heavy work and unsuitable for women, but women are used extensively in cleaning and inspecting glass. After the glass is cooled, the melting pot is broken away with a sledge hammer and the glass is inspected in large pieces by men cutting away all obviously defective parts. It is then subjected to close inspection by both men and women for strae, strain, and bubbles. Men weigh, mold, and press optical glass. Molding and pressing are skilled tasks, the work is hot and strenuous, and there is slight probability that women might qualify or be acceptable to the management. The burring of rough edges and the indexing of optical glass—the latter more or less a laboratory job—are suitable work for women, but none are employed. All the women are on light, unskilled work, cleaning, weighing, inspecting, and packing into trays, with a larger proportion of women working on ophthalmic glass rather than optical.

Lens grinding and polishing.

Optical lenses and prisms probably are the most important and basic components in optical instruments and lens grinding and polishing are fundamental jobs. Six of the plants visited are grinding and polishing their own optical elements. Blocking, grinding, and polishing of various degrees or stages, silvering, etching, centering, edge grinding, cementing, and correcting are operations in processing of lenses and prisms. In times of normal production, the precision optical worker is expected to be able, if necessary, to carry out all these operations, but during emergency periods when the expansion in production of optical instruments demands many times the usual output, specialization in jobs has become a necessity and inexperienced workers are being trained.

Very few women have been known to do blocking, grinding, and polishing of optical elements, and there is considerable diversity of opinion as to women's ability to do this work because of the traditional skill attached to the trade. A few were found doing single-spindle blocking and polishing. When grinding and polishing requires handling of heavy cast-iron blockers, the work is too heavy for women, but with specialization in the manufacture of a variety of optics, women undoubtedly could be trained to do the lighter grinding, using small blockers and single spindles.

Sometimes the initial grinding of roughing and smoothing is by hand, but considerable finger and hand pressure must be exercised and the abrasives and rouge are hard on the hands. The grinder and polisher must acquire a feel for the proper rotary motion and suction of the blockers or spindles. Some of the grinding and polishing was reported as requiring not more than 6 months to a year to attain skill, depending on the type of work and the precision required.

In the process of polishing, the lens must be checked with a test gage to determine the exactness of the work, and on some of the fire-control optics the tolerances are so fine that only men with many years of experience are considered able to carry on the work. But not all the polishing is of such precision. In an instrument factory in Scotland, women do optical grinding and polishing to extremely fine tolerances.

Women's work on optics at the present time is largely centering, silvering, etching, cleaning, and inspecting. Women do a great deal of cleaning, which is work of most careful and painstaking nature, removing microscopic specks with small vacuums and cleaning solvents and visually inspecting lenses and prisms with the aid of magnifying glasses. In centering, considerable skill is required in mounting the lens for edge grinding so that the exact optical center is obtained. Once the lens is mounted and the center secured, the machine grinding of the edges is an automatic process. Centering is being taught to girls in 3 months or less. A trainee works with an experienced operator.

Women often are employed with men on interchangeable jobs in the etching of glass. The glass is first given a wax coating, and then a pantograph engraving machine cuts the surface of the wax and hydrofluoric acid etches the lines on the lens or prism. Women are doing all this work, though the usual comment was that the most precise work requires men. Silvering, shellacking, and painting of optical elements are among the simpler operations and all are done by women as well as men. The number of women could be extended in a time of emergency.

Compound lenses are constructed by cementing—applying hot balsam with a brush—lenses of different qualities. Light pressure to exclude the bubbles of air between the lenses is applied and the operation requires the utmost delicacy of touch. For this reason women have been considered desirable and acceptable for the job and are used almost entirely.

Since women in the larger plants have proved proficient in centering, cementing, engraving, etching, silvering, and inspecting, a definite feasibility seems to be that if women's occupational opportunities were extended to blocking, grinding, and polishing they could meet the demands of such work. The traditions of the industry in the grinding and polishing of precision optics are hedged with attitudes that such occupations are almost monastically male, but if optical elements become increasingly a bottleneck in the production of fire-control instruments, more inexperienced workers must be trained and a good share of the work might be done by women. Basic requirements are patience and skill to work to precise tolerances in terms of wave lengths, and many industries have accepted as a truism the fact that women excel on work that requires great attention to detail.

Assembly of optical and fire-control instruments.

The larger fire-control instruments are very intricate and are still made on a custom-shop basis. Range and height finders weighing 5 tons or more, having more than a thousand mechanical parts, 150 or more optical elements with numerous multiple prisms, may take more than a year to build. Since only a few men with long optical-work histories are considered sufficiently skilled to assemble such an instrument, women could not be expected to augment this group. On other fire-control and optical instruments, such as panoramic sights, periscopes, plotting boards, quadrants, sextants and octants, the work is not on a quantity production basis even in an emergency, operatives with versatility in skills are necessary, and women are used only on a few minor subassemblies.

Binoculars are the only fire-control instrument on which women are employed extensively. Women are cleaning, inspecting, mounting, and setting optical parts such as lenses, porroprisms, and reticles into the case or housing, and staking and making minor adjustments of the position of the parts. Similar work is being done by women on telescopes, aircraft sights, and small gun sights.

Sighting, adjusting for parallax, checking definition and focal length, collimating, calibrating, and other final testing is done by men on all optical instruments, including the simpler binoculars and telescopes. Men often have progressed to these jobs from machining and assembly and have a general knowledge of the optical and mechanical systems, and their applications for fire-control purposes, which is a background possessed by few women. On some of the instruments such as binoculars and small telescopes, made in large quantities, women should be afforded the opportunity to be upgraded from assembly operations to some of the testing work.

After all the adjustments and tests have been made on binoculars, women are doing the final closing of binoculars, disassembling eye pieces and objective lens, cleaning with vacuum lines, fine brushes, cleaning solvents, replacing the cleaned parts, greasing threads, waterproofing screws, seams, and so forth.

Machining of optical and fire-control instruments.

In addition to the optical work there is a great deal of machining and assembling of metal parts. A large proportion of the men in the machine shops are skilled mechanics able to set up all basic machines, follow intricate blueprints, and work to very fine tolerances. As in the aircraft-instrument machine shops, women are most frequently employed as operators of drill presses and occasionally on milling machines, light punch presses, and bench lathe applications such as burring, lapping, and diamond turning for finishing surfaces. The proportion of women employed in the machining of instruments is small, and machine set-ups are all made by men except in two instances where women milling-machine operators make their own set-ups. All other machines are operated by men. The present possibilities of extending women's employment seems slight, except for a larger proportion of the drilling, milling, bench lathe, and punch-press operations and some of the work on smaller hand screw machines and special applications of automatic lathes where long runs are common.

Miscellaneous jobs.

Painting, plating, heat treating, graduating, and engraving of metal parts, and other miscellaneous jobs, are similar to those on aircraft instruments that have been noted in that section of the report.

SURGICAL AND DENTAL INSTRUMENTS AND EQUIPMENT

The elimination of German competition and the defense orders for surgical and dental instruments have given this industry a defense boom. Prior to the war of 1914-1918 about 85 percent of all surgical instruments used in the United States were manufactured in Europe, and though the industry got a footing in this country during the 1917-1921 period, the United States markets were recaptured by Germany for a decade or more. In the last few years the industry has experienced another war and a great domestic demand, and it is gradually building up to meeting 100 percent of the domestic needs. In addition, exports to Europe, Canada, Latin America, and Asia are increasing each year. Since the industry has come into prominence within the last few years, few skilled, experienced instrument makers are available, and the industry has had to take young men and train them as instrument makers. The Women's Bureau was interested in discovering to what extent and on what occupations women might be trained for work on surgical and dental instruments and equipment.

In terms of total number of wage earners, the surgical and dental industries are small. The industry centers in New York, Pennsylvania, and Ohio, with marked concentration in the first and second. Almost three-fourths of the workers in dental equipment and dental supplies in the country are reported in New York and Pennsylvania, and the largest surgical-instrument manufactures are in New York State.

Five firms in New York State making surgical instruments, dental equipment and instruments, and clinical thermometers were visited. In 2 plants employing 661, of whom 20 were women, only surgical instruments and supplies were made. In the 2 dental equipment and dental goods plants, and 1 thermometer factory, employing 3,147 workers (759 of them women), there was considerable diversification of products and not all would fall in the field of surgical and dental instruments.

Surgical instruments.

In the 2 firms manufacturing surgical instruments, such as hemostatic and other forceps, retractors, surgical scissors, knives, saws, scalpels, syringes, and so forth, the women are employed on only a few jobs, cleaning, inspecting, and wrapping the articles for stock and shipment. Altogether there were only 20 women reported in the 2 firms, or about 3 percent of the productive workers.

Surgical instruments are made of tool and stainless steels, which present special problems of processing. Forging, annealing, stripping stainless steel, plating tungsten steel, and heat treating are relatively insignificant in the numbers employed, and due to the heaviness and the conditions of work are not considered jobs to be advised for women. After the forgings have been trimmed, milling surfaces and cutting serrations are the most common machining operations, aside from grinding and polishing. Most of the men set up their own machines and must be able to perform a variety of progressive operations on several types of instruments. A few women might be employed on these operations.

Rough grinding, polishing, and buffing comprise a major part of the work, with a series of operations using successively finer abrasives until the final polishing—known as coloring--is done on rag wheels. In general, these operations are decidedly heavy and dirty. On the coarser carborundum wheels, there are flying particles in spite of exhausts, odors of hot metal, and on all grinding and polishing a firm grasp and hand pressure must be exerted on the instrument against the wheel. Generally the work would hardly seem desirable to many women, for in addition to the strain there is a constant spattering of buffing paste, rouge, fine dust covering hands, face, and clothing. The one job that seems feasible for women is the final color buffing to give a high polish to the metal, but this too is usually a strenuous job and does not employ any appreciable number.

Almost one-half of the employees are on miscellaneous operations of a bench-work nature such as hand filing, fitting, adjusting, soldering, or brazing, and like machining this work is not essentially repetitive and the employee must be versatile, using all sorts of tools and light machines. Bench lathes are used in burring and adjusting and most of the drilling is combined with assembly. Burring and filing are not light jobs, as the steels used are hard and considerable pressure must be applied to the file. Fitting, setting, and assembly requires an estimated minimum of a year's experience to get close adjustments

and proper play. Most of the inspection is coupled with the processing. Some of the final assembly jobs are riveting and screwing parts together, inserting springs, breaking-in joints, and oiling. Visual inspection and testing the grip of instruments are done by both men and women.

Though the heaviness of the work, the hardness of the metal, and the variety of the operations were stressed by management as a bar to the employment of women, there are some light jobs that women might do in machining, fitting, soldering, and handling the lighter instruments, if the emergency program demands increased employment of women. Even so, the manufacture of surgical instruments would never afford any marked opportunity for employment of women, as even now, when foreign competition has been drastically curtailed, the industry is limited in size.

Thermometers.

In one firm manufacturing clinical thermometers women are now employed on all the major processes. Women are gaging diameter of tubes, cutting tubes to prescribed lengths, blowing and gaging end bulbs, trimming and sealing the ends, pointing, graduating and engraving, fill-in painting, inspecting, and packing. Pointing is marking the thermometer to indicate prescribed temperature points in a controlled bath. Graduating and engraving of scales, serial numbers, company name are done by both men and women on single and gang pantographs. Waxing preparatory to engraving and all the fill-in painting of scales are done by women. Women are used almost entirely, so there is little if any opportunity for further extension.

Sphygmomanometers also are largely a product of women's work. Women do all the assembly, the cutting and sewing of the sleeve, the pointing of the dial, machining and calibrating operations on the instrument mechanism—work similar to that on aircraft instruments.

Dental instruments and equipment.

Two-thirds of the wage earners in the dental manufacturing industry are in New York and Pennsylvania, and 2 of the largest firms in the country were visited. Products of the 2 firms include dental instruments such as burs, broaches, drills, hand pieces and tools for hand pieces, abrasive points, forceps, pliers, explorers, chisels and cutting instruments; equipment such as chairs, stands with accessory fittings, sterilizers, dental gas apparatus, X-ray equipment, dental lights, and so forth; and consumable materials and supplies such as dental gold, alloys for amalgams and fillings, cement, teeth, orthodontic appliances, waxes, and so on; and in addition nondental products such as aircraft compasses, small electric motors, coils, and accessory parts for aircraft, flexible shafting, and special custom work on small plastic and metal parts.

The manufacture of consumable materials and supplies is more allied to the laboratory processing and the packaging of a pharmaceutical plant than to a metal plant making instruments. Women are used as packers,

labelers, and sorters, and the skills and training required are quite different from those of a metal plant. The mixing and processing is done by a small number of men and involves lifting raw materials and tending a number of machines.

Machining of instruments and equipment.

In the standard heavy-duty machine shop, all machines except a few drill presses are operated by men. Women might do more of the drilling, and also part of the work on punch presses, hand-screw machines, and milling.

Dental instruments of the forcep, plier, and chisel type have the same sequence of machining operations as surgical instruments such as retractors, hemostats, and so forth. Grinding, polishing, and buffing, the predominant machine operations, and the miscellaneous bench work for fitting and adjusting are like the operations on surgical instruments, and the same findings hold for the employment of women.

Women do all kinds of light machining on hand pieces, burs, broaches, and fittings, which are quantity production goods. They are turning, drilling, reaming, milling, lapping, and burring. Men are doing some of the same operations, but though quantity and quality of workmanship on certain processes were reported as about the same for the two sexes, the men are said to be all-round operators with experience and skills that allow them to be shifted to any operation.

Dental burs and broaches are made in about 150 styles, and are almost entirely manufactured by women, who are straightening, cutting, and inscribing the trade-mark on wire used as raw stock. Semi-automatic and special automatic machines are used for forming the end of the bur. On some operations girls are tending a battery of machines loading and checking the precision of the operations with a microscope. Broaches are ground and tapered on fine carborundum wheels and barbs are cut on a special bench machine. The operations are checked under a microscope.

On hand pieces and small accessories women are doing small subassembly, using bench tools and appliances. Practically all jobs of this nature could be done by women. Inspection of hand pieces and parts, visual and gage, is done by women.

Assembly of the chairs and dental stands is almost entirely done by men. A small number of women do some minor testing, subassembly of fitting wires and tubes, and touch-up painting. In the gradual assembly of chairs and stands, the entire framework and installation of fittings frequently is carried on by one man, the work being intermittently light and heavy. Men do final inspection, testing, and manipulation of the chairs and stands. If the volume of this type of production were greater, women might fit into the assembly work, but at present all-round experienced men are preferred.

Minor jobs in the numbers of women employed include inspecting burs and broaches on comparators, wrapping and packing for stock and shipment. Women also wrap some of the smaller parts for chairs and stands. Another minor job held by women is the tending of braiding machines, making cords to be used as pulley drives on some dental equipment. Small electric motors are made in both the dental-equipment plants, and women are employed on their usual jobs of coil winding, building up small commutators, cutting, preparing, assembling, soldering wire and terminals, and so forth. The final electrical assemblies are made by men.

No women are employed in heat treating, plating, painting (except minor touch-up painting), foundry, tool making and tool room, or operating plastic molding machines, and the job possibilities for women in these divisions are slight.

Oct. 1941
February 5, 1942

INFORMATION NOTES ON WOMEN IN WAR INDUSTRIES

From: Nora Piore
Specialist in Industrial Communities
Program Staff - U.S.O.-Y.W.C.A.

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TRENDS IN EMPLOYMENT OF WOMEN IN DEFENSE OCCUPATIONS

Source: Labor Market Developments
(Division of Research and Statistics-
Bureau of Employment Security)
October, 1941

SUMMARY OF TRENDS IN THE U.S.

The predicted increase in employment of women in jobs normally open to them and in jobs formerly held by men is rapidly becoming a reality. It is estimated that 30,000 women are at work in arms and ammunition plants filling shells, making fuses for high explosive shells, filling and sewing powder bags, and performing many other tasks. Women are being hired in large numbers by the California aircraft factories and are already working in the Connecticut aircraft factories. The Kansas and Maryland aircraft industries are experimenting with women workers. They are also being employed in the radio, electrical instrument, and small parts industries in many places, usually for assembly work, inspection, punch and drill press operating, and light welding. In several defense areas the N.Y.A. is starting playroom projects for children of women employed in industry.

I. IN THE NEW ENGLAND REGION

The growing scarcity of skilled workers is bringing about a greater utilization of women in industry. Machine-shop courses have been opened to women in Connecticut and in some localities graduates are being rapidly placed. More metal-working plants are exploring the possibilities of using women in jobs formerly held only by men.

Ordnance

The supply of skilled workmen is so depleted that Massachusetts and Connecticut arsenals and ordnance plants are trying to overcome shortages by dipping into other pools of labor in their vicinity. . . . Job applications from women are being seriously considered for bench and light machine operations.

Agriculture

School children have been employed to a great extent in the tobacco fields of Hartford.

Provisions for an Adequate Labor Supply

Scarcely any defense training course is operating at capacity in southern Connecticut because with so many jobs immediately available few young men are willing to finance themselves during the training period. For this reason New Haven, Bridgeport, and Danbury are experimenting with the training of women in machine-shop work. Training courses in machine operation are also being held for women in Pittsfield and Springfield, Mass. At the same time, there is a tendency for married women to withdraw from the labor market, now that the head of the family earns higher wages in defense employment.

II. IN NEW YORK STATE

In some agricultural communities Negro labor has been imported from the South for the first time since the First World War.

The seasonal increase in retail store hiring has begun earlier than usual. . . . Stringencies are expected in all retail occupations in Rochester where sales in July set a 20-year record. The shortages will probably be met by training inexperienced help and rehiring married women.

III. IN MIDDLE ATLANTIC REGION

Provisions for an Adequate Labor Supply

Because of the steadily contracting supply of qualified workers, employers are constantly liberalizing their hiring specifications. The prejudice against employing women is disappearing and many industries are willing to give them at least a trial. A large Baltimore aircraft plant has recently adopted a policy of using women in light assembly work; if they prove satisfactory, a considerable number will probably be hired. Also in Baltimore, a radio concern will soon employ several hundred women for light assembly work. In both instances the women are first trained in the defense schools.

IV. IN THE GREAT LAKES REGION

A typewriter company in Illinois needs women experienced on punch and drill presses to replace male workers who will be transferred to production of small fuses.

Production began at the Ravenna, Ohio, munitions loading plant in August with about 200 workers. Construction of the plant is now scheduled for completion by January and hiring is expected to continue through September 1942 when about 10,000 workers, two-fifths of whom will be women, will be employed.

The Charlestown, Indiana, powder plant increased employment more than 1,000 during August, mostly through transfer from construction jobs, and expects to continue this practice. The bag loading plant in the same

town planned to begin actual operations early in September. Its hiring will be limited to women with no previous industrial experience; restrictions as to age, height, and education are few but applicants are required to pass a rigid physical examination.

White-Collar and Service Workers

The sales and service field are calling for more workers. In Indianapolis it is impossible to satisfy the demand for laundry and dry-cleaning help and all types of restaurant workers. An eastern mail-order firm has opened a general warehouse in Indianapolis and will make further demands on the supply of sales and service workers when it recruits 600 employees. A dearth of clerical workers and stenographers in most of the larger cities of Illinois is attributed to the failure of wages to keep pace with rising demand.

Provisions for an Adequate Labor Supply

At Benton Harbor, Michigan, the Vocational Training Council is planning defense training for women workers recently laid off as a result of silk shortages. These workers will receive instruction in punch press and drill press operation, blue print and micrometer reading, and will eventually be available for inspection jobs and light assembly work.

Numerous instances of the employment of women in jobs formerly filled by men are reported. An Illinois furniture company recently hired and trained 20 women in machine shop and assembly work formerly done by men. Some employers, however, appear reluctant to hire women, possibly because of legal restrictions on the hours they may work.

V. IN THE SOUTHEAST AND GULF REGION

Agriculture

Farm labor in August and September was abundant throughout the South. Payment of higher wages, recruitment of transient Mexicans, and increased utilization of reserve labor supplies, including women and children, made the supply more than adequate for the demand.

Miscellaneous Industries

Employment practices developing in the munitions industry include the growing acceptance of women, extensive use of vocational school trainees, and on-the-job training. Approximately 150 women drill-press operators will be hired in Miami to make shell fuses, and a fuse-loading plant at Macon will hire 300 persons, a majority of them women, within the next two months. . . .

There is a tendency in the South Carolina mills to pay over-time rather than add a third shift because housing facilities are scarce for in-migrants, separations after peak employment reduce the opportunity for reductions in unemployment compensation taxes, and old employees achieve better production quotas.

A temporary shortage of domestics, especially in Mississippi, has developed because the unusually high wages paid for cotton picking this year have attracted large numbers of Negro women and children.

Provisions for an Adequate Labor Supply

Soldiers' wives, many from New York, have come to Anniston to live and seek work.

VI. IN THE SOUTHWEST REGION

Summary

Demand for service workers of all types is heavy. In the large metropolitan areas employers are finding it more difficult to obtain experienced sales clerks, hotel and restaurant workers, bookkeepers, stenographers and operators of office machines. Low wages offered these groups of workers account for the small number of applicants available for these jobs. Workers are being sought by garment manufacturers having defense contracts and in a number of localities the available supply of sewing machine operators is exhausted.

Ordnance

A shell-loading plant under construction will begin production about May 1942. Production for training purposes will begin as soon as one unit is completed. The company expects to employ 8,000 workers at capacity operation, 2,500 of whom will be unskilled women.

Agriculture

Cotton picking in the six southeastern counties of Missouri got under way during the middle of August. Decreased production in some counties will reduce an anticipated shortage of pickers. This shortage, however, is being offset by domestic workers and families from the hills who have been attracted by the high wages.

Miscellaneous Industries

Garment manufacturers in Missouri and Texas working on government contracts are using all available machine operators and absorbing trainees as fast as they can be trained.

VII. IN THE NORTH CENTRAL REGION

Summary

Reports from South Dakota indicate that women are filling jobs vacated by men who have migrated to defense areas.

Ordnance

The International Harvester Company and the Twin-City ordnance plant both in the Minneapolis - St. Paul area expect to hire large numbers of women employees who will be drawn from service and trade establishments in the area.

Miscellaneous Industries - Service and Clerical Workers

Throughout the area, it is becoming increasingly difficult to obtain domestics, largely because wages are still very low. In some sections of North Dakota, housemaids get only $3.50 to $4.00 a week. Shortages are being alleviated in some cases by lessening the duties and not requiring maids to wash, iron, or take care of children as part of their regular household tasks. Nebraska reports higher wages being paid to clerks and stenographers. Salesclerks and workers in wholesale and retail establishments are hard to replace, because of higher wages being paid in national defense centers.

Training

A new type of training, that for power-sewing-machine operators, is now being offered in Iowa, Minnesota, and Nebraska. The major training project in Iowa is concerned with making available about 1,000 workers for the Des Moines ordnance plant. At present 500 men and women are being trained as tool makers and die sinkers. To facilitate the training process each of these jobs is being diluted so that each trainee will be skilled in only one phase of the occupation. Iowa State College is also training workers for the ordnance plant, offering courses in foremanship and metallurgy.

VIII. IN THE ROCKY MOUNTAIN REGION

Summary

Harvesting operations dominated the economic activity in this area during this period. Stringencies were averted through intensive recruitment, including the use of radio and newspapers, increased mechanization of farming operations, greater use of family labor, and cooperation with W.P.A., C.C.C., and school authorities for the release of workers.

The shortage of domestic and service workers which was expected to be relieved at the close of the tourist season continues to be a problem, since most of the workers in the tourist trade were teachers and students who have returned to school.

The Rocky Mountain region continues to be one of the chief sources of labor supply for the defense industries on the West Coast. Practically all training courses in the area are geared to supplying workers for occupations essential to aircraft and shipbuilding.

Ordnance

Operations at two large munitions plants are getting under way. The Denver Ordnance Plant, operated by the Remington Arms Company, has already hired 950 workers and expects to be employing about 6,700 workers when operations attain their peak in March 1942. The Ogden Ordnance Depot, now employing 900 men and 50 women, expects to hire 1,200 men and 1,000 women during the next 6 months for employment in the new 37-millimeter shell-loading plant. When the peak of employment is reached in 1943, approximately 5,000 workers will be employed.

Service and Clerical

Every state in the area reports that it is becoming increasingly difficult to obtain domestics, service workers, salesclerks, and other trade employees. In order to meet these stringencies, employers are relaxing their requirements, improving working conditions, and raising wages. Colorado restaurant operators are hiring colored workers and Utah restaurant owners have relaxed a long-standing ban against married employees. Retail establishments are similarly relaxing requirements; a leading Denver department store having raised its age limit for saleswomen from 35 to 50 years. In towns with defense projects, typists and stenographers are leaving private employers for higher wages in the Government service.

Provisions for an Adequate Labor Supply

In Wyoming, employers are hiring underqualified workers, particularly stenographers, to avoid losing them to higher-paying jobs.

IX. IN THE PACIFIC COAST REGION AND ALASKA

Aircraft

Women will constitute a significant proportion of San Diego County's new aircraft workers. One company will hire 1,500 - 1,600 women within the next 60 days, many of whom will not have had pre-employment training. Furthermore, the new hires will be restricted to wives or other close relatives of present workers, so as to limit the strain on an already overtaxed housing situation.

Agriculture and Food Processing

Food processing employment has reached a high point. Pear packing is now under way and apple packing and canning will start soon.

Provisions for an Adequate Labor Supply

The increasing use of women in defense work is signified by an enrollment of 450 in subassembly courses at a San Diego County aircraft school and in the intention to add classes for women in riveting, inspection, and drill-press operation. One aircraft plant in Los Angeles County already has 50 women doing precision assembly and upholstery work and intends to hire 500 more women by the end of October. Between 3,000 and 4,000 women may be employed eventually in San Diego County aircraft factories.

THE WAGE EARNING WOMAN
AND THE WINNING OF THE WAR

Source: Life and Labor
(Bulletin of the National Women's Trade Union League of America)
January, 1942

The wage-earning woman was no fiction in the winning of the First World War. The recent Japanese attack has speeded up the necessity of her again taking her place in the forefront of the defense picture in the Second World War. This important place in the nation's defense set-up has been given to the working woman not by sentiment, nor even by the necessity for women to earn a living; it has been given her by the nation's need of the factory discipline and trade training that have produced more than five million women quickly available for mobilization into war and essential production lines. In these lines, even in peace time, the wage-earning woman is about one to every four "men." In the production lines now there must be not four such "men" to maintain each fighting man, but at least eight or ten, and some authorities insist that modern warfare will require a larger number of men for every fighter. But let it rest at eight or ten. Suppose our government calls for the immediate arming of four million men and upward of five million men later. Back of them must be the reserve fighting forces in training. These are all withdrawn from trade and production. To maintain them will require between thirty and forty million "men" in production.

Without ignoring or belittling the work of any other group of women, the plain facts of war production write the wage-earning women on the records as the "shock troops" that must be counted on to meet the onrush of demands for products of amazing range to feed, house and clothe those at home, and to keep the fighting men supplied with essentials. If anyone has any question about it, let the answer come from another question. Who must furnish approximately two hundred million knit-wear units required by our army - the woman who hand-knits one sweater a week, or the machine operator who will do two thousand while the hand-knitter does her one? There is even more conviction when the question is applied to the making of munitions, which the woman outside the factory can not make at all, unless she enters the factory at a disadvantage with the wage-earning woman, who already has familiarity with factory discipline.

The need of facts about the number of working women available for essential industries was one of the important factors which led to the creation of the Women's Bureau in the Department of Labor. Its possession of all the facts about the work of wage-earning women during the First World War, and its continuous search for similar facts ever since, have put the Women's Bureau in a position of vital importance with regard to the effective shifting of those "shock troops" into production lines most needed by the nation.

NIGHT WORK FOR WOMEN IN WAR INDUSTRIES

Source: Life and Labor
(Bulletin of the National Women's Trade Union League of America)
January, 1942.

Work at night has always been considered by American labor as an evil that should be avoided. Only in industries and occupations which require continuous operation should it be resorted to. It results in lowered vitality of the worker, disrupted home life, and slower production. Several states have considered night work so undesirable that they have prohibited the employment of women on the so-called graveyard shift.

We are now in a period of national emergency. The President has asked that industry immediately increase output to the maximum. For many defense plants this will mean operating on a 24-hour basis. Many essential operations in these plants are performed by women. The War Department has asked the governors of states with night-work laws to relax these restrictions in cases where their enforcement would interfere with maximum defense production.

The legislature of New Jersey in response to this request recently amended the night-work law of that state to authorize the governor to grant permission during the war emergency to employ women at night. The Governor of Connecticut had similar power granted during the First World War. On December 12, 1941 the governors of Massachusetts and New York issued statements to the effect that employers engaged in defense production might, upon application and the showing of need, secure permission from the state labor commissioners to employ women at night. The commissioners of labor of Indiana and Kansas have taken similar action.

The Women's Bureau of the United States Department of Labor has urged that this authority be used with the utmost care and caution. No permits should be granted until thorough investigation has determined the need for employing women at night. Permits should in no case be extended to an entire industry, but should be granted to particular establishments for limited periods of time. Girls under 21 years of age should not be used for night work. These standards have been generally adopted by the states that have the authority to grant exceptions to the night-work laws, and it is hoped that they will be rigidly observed.

NEED AND AVAILABILITY OF WOMEN WORKERS IN WAR PLANTS STUDIED

Source: Victory
(Weekly bulletin of the O.E.M.)
December 30, 1941

A special series of studies is being made by the O.P.M. Labor Division of the future needs of war plants for qualified women workers and the qualified women available for defense industries, Associate Director General Sidney Hillman announced December 26.

A subcommittee of the O.P.M.'s National Labor Supply Committee is planning a program to meet anticipated future needs for women workers, and means to utilize this labor supply. Mary Anderson, chief of the United States Women's Bureau, Department of Labor, is chairman. Other members are Nelle Miles, United States Employment Service, and Thelma McKelvey, labor relations branch of the O.P.M. Labor Division.

"The President's policy of 7-day week operation of war production facilities requires a great expansion of our labor force," Mr. Hillman said, "and I am certain that a great many women will be required for industrial work before many more months have passed.

Proved usefulness in England

"Women have proved indispensable to war production in England, and we must prepare to expand their usefulness to our industries.

"The skills and abilities of women are needed, and we are working on a program to train and employ women for jobs in war industry, which will make their labor available to their country's service rapidly and effectively as they are needed."

The Women's Bureau already has made several studies.

U.S. DEPARTMENT OF LABOR

BUREAU OF LABOR STATISTICS

WASHINGTON

October 13, 1944

Miss Mary E. Pidgeon
Women's Bureau
Room 1216, Labor Building
Washington 25, D. C.

Dear Miss Pidgeon:

In accordance with your request I am enclosing a copy of our recently completed survey of reconversion problems and postwar production and employment plans of manufacturing establishments in the Buffalo industrial area. I am sure you will note and observe its confidential nature.

If I can be of any further service to you, please call on me.

Very truly yours

A. F. Hinrichs

A. F. Hinrichs
Acting Commissioner of Labor Statistics

CONFIDENTIAL

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RECONVERSION PROBLEMS AND POSTWAR OUTLOOK

of the

BUFFALO INDUSTRIAL AREA

U. S. DEPARTMENT OF LABOR

BUREAU OF LABOR STATISTICS

Productivity and Technological Development Division

August 1944

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RECONVERSION PROBLEMS AND POST-WAR OUTLOOK
of the
BUFFALO INDUSTRIAL AREA

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U. S. DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

RECONVERSION PROBLEMS AND POSTWAR OUTLOOK of the BUFFALO INDUSTRIAL AREA

By

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The Buffalo-Niagara Falls area of New York gained national prominence in the summer of 1943 when it adopted the "Buffalo Plan," providing for priority referral by the U. S. Employment Service of all male labor, to cope with the extreme shortage of manpower. The essential elements of this plan have now been adopted on a Nation-wide basis.

The Buffalo region has experienced an acute shortage of labor throughout the war period, for it is a center of heavy industry. Here are manufactured steel, machinery, and chemicals—basic products vital to the war production program. In addition, the automobile industry, always an important segment of the area's economy, has expanded greatly as a consequence of its conversion to the manufacture of war goods. Finally, two large aircraft plants are located in the area. The stringency of manpower supply has eased somewhat in recent months, but Buffalo-Niagara Falls remains in the Group I classification of the War Manpower Commission (areas of current acute labor shortages).

Because of the great expansion in employment during the war period and because of the diversification of industry, this region furnishes an interesting case study of the problems which will be faced during reconversion and afterwards. Moreover, a number of cutbacks in war production have already taken place. The Bureau of Labor Statistics, therefore, at the request of the Statistics Division of the War Production Board, undertook a survey in June and July 1944 of the reconversion problems and postwar outlook anticipated for the area. Interviews were held with representatives of 40 important manufacturing plants, representing about half of all manufacturing employment in the area, and with officials of trade unions, employer associations, and Government agencies.

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THE BUFFALO INDUSTRIAL AREA

The Buffalo Industrial Area embraces the counties of Erie and Niagara in New York State and had a population of 958,000 in 1940. About 60 percent of the total was in the city of Buffalo (576,000), which is an important center for the manufacture of steel, automobiles, and machinery. Niagara Falls (population 78,000), with its abundance of electric power, has large chemical and electrometallurgical plants. Other cities in the area are Lockport (24,000), Lackawanna (24,000), North Tonawanda (20,000), Tonawanda (13,000), and the village of Kenmore (19,000).

INDUSTRIAL COMPOSITION.

In peacetime, manufacturing enterprises provided nearly 40 percent of all employment in this area. Most important was iron and steel, which employed about 25,000 workers in 1939. While there has been no expansion of capacity for pig-iron or basic steel production during the war period, employment in the related steel-fabricating plants has increased substantially. The automobile industry employed about 10,000 workers in 1939, and more than doubled its work force for the production of war goods. The two Chevrolet plants in the city of Buffalo were converted to the manufacture of aircraft engines and other automobile plants undertook the production of parts for aircraft, ships, tanks, trucks, shells, and other war items.

Because of the availability of low-cost electrical power, the manufacture of chemicals is one of the largest industries in this area, accounting for more than 10 percent of total manufacturing employment in 1939. Under the impetus of war requirements, expansion has been great, particularly in the electrochemicals plants at Niagara Falls.

The machinery industries (electrical and other) employed nearly 12,000 in 1939 and approximately doubled in size by 1944. Producers of industrial machinery continued to manufacture their peacetime products for the use of war plants and, in addition, produced engines, gears, compressors, and similar items for ships and war vehicles.

Employment is substantial in the production of stone, clay, and glass products and in the manufacture of paper and similar products. Buffalo is a large flour-milling center, and also has other sizable local food industries. The distribution of employment by major manufacturing groups in 1939 as reported in the Census of Manufactures is shown in table 1.

Table 1.—Employment in Manufacturing Industries in the Buffalo Industrial Area

Industry	Employment (Thousands)	Industry	Employment (Thousands)
ALL MANUFACTURING INDUSTRIES.	117.2	Other transportation equipment	5.6
Iron and steel.	24.9	Paper	5.5
Food.	13.7	Electrical machinery.	4.9
Chemicals	12.8	Wood products	3.3
Automobiles	10.0	Nonferrous metals	2.9
Machinery, except electrical.	6.9	Rubber.	2.8
Printing and publishing . . .	6.3	Petroleum and coal products .	1.6
Textiles and apparel.	6.3	Leather	.4
Stone, clay, and glass. . . .	5.6	Miscellaneous	3.7

Source: Census of Manufactures, 1939.

In 1940, more than 40 percent of total employment in the area was devoted to trade and service industries serving local needs, and nearly 10 percent to transportation and utilities. Agriculture was relatively unimportant in this region and represented less than 4 percent of total employment in 1940.

Although local residents take pride in the fact that Buffalo's industries are not "war babies," the employment in new war plants is very large. Curtiss-Wright and Bell Aircraft both have huge plants in the area; in May 1944 these two plants alone employed 68,000 workers, or about one-fourth of the estimated total in all manufacturing. In addition, there are a number of smaller new war plants such as the Buffalo Arms Company, which manufactures machine guns, and the Bison Shipbuilding Company, which produces landing craft.

WARTIME CHANGES IN EMPLOYMENT AND LABOR FORCE.

The number of workers employed in all manufacturing has nearly doubled during the war period. Figures compiled by the New York State Department of Labor from Unemployment Insurance reports show that total insured employment jumped from an average of 138,000 during the year 1940 to 256,000 for the year 1943. Peak employment was reached in July 1943; in May 1944, manufacturing employment was about 10 percent below the maximum figure. While no adequate statistics are available for nonmanufacturing employment, the indications are that the increase during the war period has been small.

Despite the great advance in employment from peacetime levels, there has been scarcely any increase in the civilian population of the area. Estimates of the civilian population in November 1943, based on registrations for War Ration Book 4, are only 4,000 above the figure reported in the 1940 Census of Population. It has been estimated that in-migration has been about 70,000, of which 30,000 were in the labor force. About one-half the migrants came from the depressed anthracite mining region of Pennsylvania to work as unskilled laborers, primarily in the chemicals plants of Niagara Falls. Most of the other migrants came from New York State, principally the western part of the State. The United States Employment Service estimates that about one-half of the in-migrants will remain in the area after the war. A large proportion of the workers from Pennsylvania are expected to stay, as are many of the Negro in-migrants. Apparently most of the younger aircraft workers, who came from other parts of New York State and from the Mid-West, will leave the area after the war.

The Negro population of this region is small, but there has been some increase during the war period. In 1940, the number was 21,000. The latest available estimate, one generally considered a maximum, is 27,000, or less than 3 percent of the total.

Buffalo has expanded its industrial activity largely by recruiting women into the labor force and its record in this respect is noteworthy. In March 1940, about 26 percent of all women over 14 were in the labor force. In March 1944, it was estimated that 51 percent of all women over 14 were gainfully employed. The United States Employment Service reports that between 1940 and June 1943 the number of employed women increased from 83,000 to 196,000. Women have gone into lighter work in war plants, for the most part. While the heavy industries have not been able to draw

on this source of labor to the same extent, some women are employed even in the open-hearth and blast-furnace departments of steel mills, and a substantial number are at work in chemicals, rubber, and machinery plants.

LABOR SUPPLY AND DEMAND.

The Buffalo area continues to suffer from a critical labor shortage. The local United States Employment Service office estimated the shortage in June 1944 at 12,000, excluding agriculture and construction. This figure is somewhat lower than those for previous months, and there are other indications that the situation is becoming less critical. Most manpower reserves have already been exhausted, however, and some workers are transferring to less vital occupations or leaving the labor market. The number of unemployed workers in the active files of the United States Employment Service was only 404 in June 1944. Potential sources of new workers—women, in-migrants, and older workers—have likewise been depleted.

The statistics indicating a shortage for the area as a whole do not present a complete picture. The shortage of labor is more critical in the heavy industries--especially steel foundries and to some extent chemical plants--than it is in the so-called "glamour plants" (such as aircraft) where the work is light and wages are relatively high. Some steel plants have been compelled to use individual open-hearth workers on two shifts apiece in order to maintain production schedules. The disagreeable and heavy nature of the work makes it difficult for these plants to utilize women to any great extent. There are indications that the area manpower controls have decreased turnover in the steel industry but have not facilitated recruitment. Union and management representatives both agree that the wage differential between the heavy and light industries is hindering recruitment. On the other hand, some management officials in the lighter industries believe that the area is erroneously classed as Group I, and that they would have little difficulty in obtaining a sufficient number of workers if all controls were removed.

Adding to the difficulty of recruiting workers for war industries is the tendency of workers to seek less essential employment or to drop out of the labor market altogether. The United States Employment Service estimates that approximately 700 women per month are currently leaving war industries. Spot checks--primarily at Bell Aircraft plant--revealed that approximately 50 percent of the women returned to their homes and the other 50 percent took less essential jobs. The number of persons seeking nonwar employment as a result of optimistic war news is still small, but indications are that this factor is increasing in importance. The desire for postwar security was cited by several plants (including the large Curtiss-Wright Aircraft plant) as a factor impelling executive and professional personnel to re-establish previous business contacts. The tendency to seek civilian work is more pronounced among new recruits than among workers with high seniority. Apparently cutbacks are an important cause of withdrawals of women from the labor market. It is reported also that members of the clergy have been urging their parishioners to return to their homes to care for their children.

ADMINISTRATIVE CONTROLS.

In order to utilize the labor force most effectively, the War Manpower Commission established a controlled referral plan for Buffalo in July 1943. This plan required that all male workers be referred to employers through

the United States Employment Service or approved union hiring halls on the basis of need for workers and essentiality of product. Women were exempt from the original plan, but were included in the plan set up on June 4, 1944, when labor controls were tightened to provide a system of labor priorities with definite plant employment ceilings.

A Production Urgency Committee, comprising representatives of the procurement agencies, War Manpower Commission, Smaller War Plants Corporation, and War Production Board, assigns urgency ratings to all prime war contractors. New war contracts are allotted to plants with adequate manpower and facilities. The local Smaller War Plants Corporation office consults with an advisory committee composed of the six largest prime contractors to distribute subcontracts among the small war plants. The S.W.P.C. guides these smaller plants to new prime contractors as the need arises.

Compliance with the various controls is reported to be good, but a number of problems have arisen. The exemption of women from the earlier labor controls enabled a few plants to circumvent the spirit of the controls and led to the inclusion of women in the labor priorities plan. The Production Urgency Committee, while generally successful, cannot regulate subcontractors. Furthermore, plants are exempt from submitting contracts for P.U.C. approval if no increase in manpower requirements is involved; some companies take advantage of this exemption to obtain new contracts, later requesting additional labor. It is felt by some that the existence of the P.U.C. may tend in some instances unduly to discourage procurement agencies from placing contracts in the area. The Smaller War Plants Corporation has met with reasonable success; whether it will be able to allocate work among small plants when cutbacks become widespread is a matter of conjecture.

HOUSING AND TRANSPORTATION.

Increased activity in the area since the beginning of the war, coupled with wartime restrictions, has placed added burdens on housing and transportation facilities. Early in the war, an acute housing shortage was expected, premised on an estimate that up to one-third of existing housing was substandard. However, the completion late in 1943 of a substantial amount of Federal housing eased the strain. The Buffalo Chamber of Commerce reported that in March 1944 there was an excess of 3,500 federal units coexisting with a great demand for private housing. After the war, a considerable amount of new private housing construction is expected.

Transportation underwent a similar critical period, but is apparently reasonably adequate today, except in some outlying areas. Early in the war, the Office of Defense Transportation ordered a reduction of bus-miles operated, and the International Railway Company complied by cutting routes at the end of the lines rather than by elimination of routes. By June 1944 most lines had been restored to prewar length, however. Peak travel volume on the lines of this transit company (operating in Buffalo, Niagara Falls, and nearby areas) was reached in 1943; 217,000,000 persons were carried in that year, an increase of 118 percent over 1939 volume. Since July 1943, volume has decreased and passenger-revenue for the first quarter of 1944 was 8.7 percent below that of the corresponding quarter of 1943. The transit company attributes the decrease in travel to cutbacks in war industries and withdrawals of women from the labor force. Plans to replace street cars with busses will be resumed after the war, and postwar transportation facilities are expected to be adequate.

COMPOSITION OF THE SAMPLE

This report is based largely on interviews with representatives of 40 manufacturing plants, 36 of which were in existence in 1939. In that year, the 36 plants accounted for 39 percent of the total number of employees in manufacturing establishments reported by the Census of Manufactures. The 40 sample plants represented approximately one-half of the total manufacturing employment in May 1944.

The plants in the sample employed nearly 60 percent of all the workers in the important metals and machinery industries in 1939. Coverage, in terms of 1939 employment, is virtually complete for the automobile industry and is 46 percent for other transportation equipment. In iron and steel, normally the largest industry group in the area, the sample plants represented 56 percent of total 1939 employment; in nonferrous metals, 47 percent; in machinery (including electrical), 42 percent. For industries other than metals and machinery, coverage is substantial for chemicals (57 percent of 1939 total employment) and stone, clay, and glass (55 percent).

No companies were included in industries producing goods largely for local use or in industries, such as those producing food, clothing, leather, and wood products, where wartime conditions have not required substantial changes. It should also be noted that most of the plants canvassed were fairly large employers. Among the sample plants, as in the area, there were few producers of consumers' durable goods other than automobiles. Since reconversion problems for such producers are different from those of plants producing basic materials and from those of new war plants, the problems anticipated in this area may not be completely typical of those which may arise in other sections of the country.

Nonmanufacturing enterprises were not included in the survey. Postwar employment in these activities, however, will depend considerably on the trend of factory employment. It is believed, therefore, that analysis of probable developments in manufacturing furnishes a reasonable guide to future employment prospects for the area as a whole.

TABLE 2.--PLANTS INCLUDED IN SURVEY

COMPANY	PREWAR PRODUCT	PRESENT PRODUCT	EMPLOYMENT MAY 1, 1944
Curtiss-Wright Corp. Cheektowaga, N. Y.	Aircraft	Same	42,015
Bison Shipbuilding Co. Tonawanda, N. Y.	None--new plant	Landing craft	720
American Shipbuilding and Drydock Co. Buffalo, N. Y.	Ship repair	Shipbuilding: tugs	185
Richardson Boat Co., Inc. No. Tonawanda, N. Y.	Pleasure boats	Landing craft	173
Harrison Radiator Div., General Motors Corp. Lockport, N. Y.	Auto radiators, heaters	Heat transfer units for ships, tanks, aircraft, trucks	5,661
Chevrolet Motor and Axle Div., General Motors Corp. Tonawanda, N. Y.	Carburetors, fan belts, bodies, parts	Aircraft engines	5,975
Chevrolet Motor Aviation Engine Plant No. 2 Buffalo, N. Y.	Auto assembly	Aircraft engines	4,940
Houde Engineering Div., Houdaille Hershey Co. Buffalo, N. Y.	Auto parts	Aircraft parts, shock absorbers	3,839
Trico Products Co. Buffalo, N. Y.	Windshield wipers	Same. Also ordnance parts	1,928
Fedders Manufacturing CO. Buffalo, N. Y.	Refrigeration parts, auto radiators, industrial heating equipment	Garand rifle clips, aircraft heat exchangers, drinking-water coolers	781
Bethlehem Steel Co. Lackawanna, N. Y.	Steel	Same	11,220
Buffalo Arms Corp. Cheektowaga, N. Y.	None--new plant	.50 cal. machine guns	3,260
Buffalo Bolt Co. No. Tonawanda, N. Y.	Nuts, bolts, rivets	Same	1,503
American Radiator Co. (Bond Plant) Buffalo, N. Y.	Cast-iron boilers	Same	990
Pratt and Letchworth Co. Buffalo, N. Y.	Steel castings and forgings: railroad cars, freight car shock absorbers	Same. Also castings and forgings for tanks, half-tracks, ordnance parts	939
Columbus-McKinnon Chain Corp. Tonawanda, N. Y.	Chains, hoists, cranes	Same	914

TABLE 2.--PLANTS INCLUDED IN SURVEY--Continued

COMPANY	PREWAR PRODUCT	PRESENT PRODUCT	EMPLOYMENT MAY 1, 1944
American Brass Co. Buffalo, N. Y.	Copper, copper-base alloys: strip, sheet, tubing	Same	2,593
American Magnesium Co. Buffalo, N. Y.	None--new plant	Magnesium castings	1,190
Colonial Radio Corp. Buffalo, N. Y.	Radios: home and auto	Radio transmitters and receivers for armed services	2,025
National Carbon Co. Niagara Falls, N. Y.	Carbon and graphite electrodes	Same	1,035
National Battery Co. Depew, N. Y.	Storage batteries	Same	775
Worthington Pump and Machinery Co. Buffalo, N. Y.	Compressors, engines, V-belt drives	Same	2,093
Sterling Engine Co. Buffalo, N. Y.	Marine internal combustion engines and parts	Same	1,135
Farrell-Birmingham Co. Buffalo, N. Y.	Gear reduction units, gear-cutting machines	Same	1,096
Ross Heater and Mfg. Co., Inc. Buffalo, N. Y.	Power plant, oil refinery, and other industrial equipment	Coolers for engines, synthetic-rubber manufacturing equipment	347
D-N-X Engine Co. Buffalo, N. Y.	None--new plant	Diesel engines	307
Linde Air Products Co. Tonawanda, N. Y.	Oxygen-producing equipment, chemical-producing equipment	Same	1,401
Union Carbide and Carbon Co. Electro-Metallurgical Div. Niagara Falls, N. Y.	Ferro-alloys	Same	2,917
E. I. du Pont de Nemours Co., Inc. Tonawanda, N. Y.	Rayon yarn, cellophane	Same	2,209
National Aniline and Chemical Co. Buffalo, N. Y.	Dyes, chemicals, pharmaceuticals	Same	1,960
E. I. du Pont de Nemours Co., Inc. Electro-Chemical Dept. Niagara Falls, N. Y.	Heavy chemicals and solvents	Same	1,924
Hooker Electro-Chemical Co. Niagara Falls, N. Y.	Electro-chemicals	Same. Also "secret" chemical products	1,188
Socony-Vacuum Oil Co. Buffalo, N. Y.	80-octane gasoline, wax, etc.	Same. Also 100-octane gasoline	340

TABLE 2.--PLANTS INCLUDED IN SURVEY--Concluded

COMPANY	PREWAR PRODUCT	PRESENT PRODUCT	EMPLOYMENT MAY 1, 1944
Carborundum Co. Niagara Falls, N. Y.	Abrasives	Same	5,517
National Gypsum Co. Buffalo, N. Y.	Gypsum, rock wool	Same	576
F. N. Burt Co. Buffalo, N. Y.	Paper boxes and containers	Same	1,349
International Paper Co. Niagara Falls, N. Y.	Paper	Same	849
Remington Rand, Inc. Tonawanda, N. Y.	Files and filing cabinets	Aircraft parts, filing cabinets	836
Hewitt Rubber Corp. Buffalo, N. Y.	Industrial rubber goods	Same. Also self-sealing gasoline tanks	2,103
Spencer Lens Co. Buffalo, N. Y.	Scientific and optical instruments	Same. Also fire control equipment	2,017

CURRENT PRODUCTION AND PRODUCTION PLANS

Type of Product.

Practically all of the plants included in the survey are producing goods for direct or indirect war use, and a number of them are prime contractors for important war products. Curtiss-Wright produces the C-46 cargo plane and the P-40 fighter; Buffalo Arms, .50 caliber machine guns; the two Chevrolet plants, Pratt and Whitney aircraft motors; Bison Shipbuilding and Richardson Boat, landing craft. Other companies manufacture components for war items or supply industrial equipment vitally needed in war plants. Bethlehem Steel produces steel ingots and rolled steel in various forms; American Brass, copper and copper-base alloys; Union Carbide and Carbon, ferroalloys; Harrison Radiator, heat-transfer units for ships, aircraft, and tanks; Remington Rand and Houde Engineering, aircraft parts. The Electro-Chemical Department of DuPont, Hooker Electro-Chemical Co., and National Aniline manufacture basic industrial chemicals and war chemicals.

Although the products manufactured are essential in the war production program, in the majority of plants they are similar to those produced before the war. In general, plants producing chemicals, rubber, stone, clay, and glass products, and basic metal products have not changed their output substantially. Fabricators of metal products and producers of machinery have changed specifications somewhat, but are not making entirely new types of products. In some cases, there has been virtually no change in the type of product or in the customers served. More frequently, designs have been changed or war goods have been added to other production. For example, Pratt and Letchworth, in peacetime a railroad foundry, now produces tank parts and gun castings as well as parts for freight cars. Hewitt Rubber Company is now manufacturing self-sealing gasoline tanks in addition to its usual line of industrial rubber goods. Farrell-Birmingham Company continues to produce gear-reduction units and gear-cutting machines as in peacetime, but the gear-reduction units are largely for marine rather than industrial use.

The greatest changes in output have occurred in establishments which produced automobiles and other transportation equipment before the war and in the one plant which produced radios. The two Chevrolet plants are producing aircraft engines. The Trico Products Company has continued the manufacture of its peacetime product, windshield wipers, but 50 percent of plant capacity is now devoted to the production of gun components--magazine bodies, firing pins, etc. Colonial Radio Company is now producing radio transmitters and receivers for the Signal Corps, principally walkie-talkies, instead of the receivers for automobiles and homes.

Expectations on War Production.

Most of the plant officials believed production schedules would remain unchanged through the end of 1944. Commitments are extremely variable, however, for some companies have long-term contracts while others have a number of small contracts ending at different dates. Thus, the National Battery Company has Navy contracts running through 1945 which will maintain production at current levels. In many plants, however, definite production schedules are not set in advance. In one plant, the American Brass Company, schedules are definitely established only one month in advance, but management here was optimistic that production would continue at capacity levels for some time to come.

In 6 plants, there is the expectation that production will decline substantially during 1944 or during the early part of 1945--Sterling Engine, Farrell-Birmingham, Ross Heater, D-N-X Engine, Houde Engineering, and Bison Shipbuilding. Most of these plants, which together employed about 7,500 workers, are engaged in the manufacture of components for ships. D-N-X Engine Company expects no new contracts after the expiration of its present commitments in January 1945. The company has been asked to use its space for storage and may place its facilities in stand-by status after that time. At Sterling Engine Company, which manufactures marine engines and parts, commitments extend through the end of 1944 and only 50 percent of production is expected to continue beyond that date. Farrell-Birmingham anticipates a 25-percent decline in production for the fourth quarter of 1944 and a further reduction in 1945. At the Ross Heater Company, manufacturer of coolers for marine diesel engines and similar products, fourth-quarter volume is scheduled 20 percent below that for the third quarter. A further reduction of 50 percent will occur in 1945 if no new contracts are received, but management does not expect production to decline to this extent. The Bison Shipbuilding Company, which produces landing craft, expects a sharp drop in activity in 1945. Houde Engineering, the largest company in this group, has already experienced cutbacks in production schedules, and further declines are anticipated.

While most plants expect no substantial changes in production schedules during the remainder of 1944, the outlook for 1945 is uncertain. Thus, the DuPont Electro-Chemical Department expects that production will taper off after the defeat of Germany. Many other companies also emphasized that future production schedules were indefinite. However, two producers of basic metals--Bethlehem Steel and American Magnesium--expect that there will be no change in the volume of output for sometime to come and a number of plants producing "nonwar" products (paper, rayon, stone, clay, and glass products) also expect that production will remain at current levels.

In general, management representatives reported no particular difficulty in getting war contracts. Many plants have had more business available to them than could be handled with their facilities, and frequently the lack of manpower rather than the lack of business has been the most important factor limiting production. Several of the plants work closely with representatives of the procurement agencies on production scheduling or receive direct orders from these agencies. Occasionally, the question of manpower supplies in the area has presented some difficulty, but this factor has not been a serious deterrent to the granting of war contracts. Several firms indicated that they would prefer civilian production to war production, but in most cases, the preference was for a certain percentage of civilian work rather than for a complete shift from war to civilian goods.

RECONVERSION PLANS

INDUSTRY PLANS.

In almost all of the plants visited some thought has been devoted to problems that may arise as war demand tapers off. There is considerable variation, however, in the degree to which actual plans have been formulated for resumption of peacetime production. More than half of the plants need no definite programs for reconversion, since their war products are essentially the same as their pre-war products. In some of these plants, although no definite plans have been made for post-war production, research staffs are engaged in developmental work on new products. The principal plants in this category are the chemicals plants, where markets will be the major post-war problem. Establishments normally dependent on the automobile industry will generally have to retool to resume civilian production, but they are unable to make definite reconversion plans until the situation in the automobile industry is clarified. They are operating on the assumption that the first post-war cars will be replicas of pre-war models.

Approximately a third of the plants have taken definite steps either to develop new products or to plan marketing methods and develop sales outlets. Only 6 plants expect to enter into the production of brand-new items, and in no case will new items entirely supplant pre-war products. Curtiss-Wright Corporation has an elaborate post-war research organization and a post-war planning committee that meets regularly. Eventual production of passenger planes and aluminum busses and railroad passenger-car bodies is under consideration, but no detailed engineering has begun. Remington Rand, Inc. plans to discontinue the manufacture of one pre-war item--kardex files--and has started design work for a new item--steel desks. Trico Products Company, producer of windshield wipers, expects eventually to add a new product, an automatic window raiser for automobiles. Fedders Manufacturing Company plans to produce air-conditioning equipment and wind tunnels in addition to its pre-war line of automobile radiators, refrigerator parts, and heating equipment. American Brass Company may add brass rod production; at present it produces sheet, strip, and tubing. A new shipyard--Bison Shipbuilding Company--plans to build specialized cargo vessels and tugs on a small scale after the war.

Reconversion plans are not limited, however, to the development of entirely new types of products. Colonial Radio Corporation has completed a survey of pre-war material suppliers to determine possible post-war prices. This plant will manufacture its pre-war radio set initially, then an interim set, and finally a new model. Sterling Engine Company has completed engineering on a new type of diesel engine for post-war use and is attemping to get orders for post-war deliveries of this and other engines. Richardson Boat Company is designing a line of power cruisers similar to its pre-war pleasure craft; it expects to begin experimental building soon, having already obtained clearance on materials. Dealers have been contacted and marketing plans discussed. This small company has farsighted plans to level off seasonality of production and to maintain steady employment and high weekly earnings.

EXTENT OF RETOOLING REQUIRED.

Retooling will be a significant factor in only about one-fifth of the plants included in the sample; some of the largest employers are included in this group, however--Curtiss-Wright, the two Chevrolet plants (if both remain in business), Harrison Radiator, Houde Engineering, and Colonial Radio. Most of the plants in the automobile industry will be compelled to do considerable retooling before production of automobiles or parts can be undertaken to any significant extent. In addition, the Remington Rand plant will have to do much retooling before its new product can be manufactured. Minor retooling will also be necessary in other plants before new products can be made.

SPECIAL RECONVERSION PROBLEMS.

Other problems include disposition of Government-owned material, equipment and facilities, acquisition of scarce materials and components, and recruitment of sufficient manpower. For example, almost all facilities used by Curtiss-Wright Corporation are owned by the Defense Plant Corporation, a factor which inhibits post-war planning. American Brass Company and Fedders Manufacturing Company have Government-owned machinery which will have to be moved before civilian production can be resumed. Two shipyards--Richardson Boat Company and Bison Shipbuilding Company--may be caught with partly completed ships if war contracts are terminated suddenly. Both companies would need permission to remove these ships and Bison would require clarification of its position under a 3-year stand-by option held by the Government.

The extent to which inability to obtain necessary materials and components will delay reconversion depends, of course, on Government policy and the needs of the war program. Restrictions on rubber will affect Hewitt Rubber Corporation; steel supplies and availability of tools will determine, in part, when Remington Rand can begin manufacturing desks. Fractional horsepower motors are necessary to Fedders; lumber and boat accessories of various types are essential to Richardson Boat Company. Apparently, advance notice concerning availability of materials would facilitate planning of civilian production in many instances. In addition, a railroad foundry, Pratt and Letchworth Company, stated that the ceiling price set by O.P.A. on its normal product is too low to permit return to civilian production. Manpower is expected to be a problem only if civilian production is resumed during the war. Adequate labor supplies will be available afterward.

Company officials generally emphasized that reconversion will not present serious problems if there is a gradual transition from war to peace production. If all war production were ended suddenly, however, difficult readjustment problems would arise.

TIME REQUIRED FOR CONVERSION.

Plant estimates on conversion time required for technical reasons vary from "immediate" to several years. Average reconversion time, where retooling is necessary, will probably be about 6 to 9 months, but some plants could continue production during this period. Plants manufacturing their prewar items during the war could, of course, schedule civilian deliveries immediately, and production would be limited primarily by markets. Almost all plants in the heavy industries--steel and chemicals--as

well as Socony Vacumm Oil Company, Hewitt Rubber Corporation, Carborundum Company, and National Gypsum Company, can continue uninterrupted production. The shipbuilding yards can resume normal production in about 2 weeks and the two nonferrous metals producers in a few weeks. At one of these plants, American Magnesium Company, the time necessary for conversion would depend on the availability of patterns for sand-foundry products. If patterns were made while war production continued, the transition to civilian production could be made without delay.

Where retooling is necessary, reconversion will take longer. The plants in the automobile group and the one aircraft plant can apparently reconvert in from 3 to 9 months. Curtiss-Wright Corporation will require 9 months for developmental work and an additional 6 months for retooling to produce aluminum busses and railroad passenger-car bodies. Colonial Radio Corporation can begin production of prewar radios 60 days after tooling begins and can make deliveries in 90 days. Remington Rand could produce file cabinets in 3 weeks, but would require 6 months for its new item, steel desks.

RESUMPTION OF CIVILIAN PRODUCTION.

Approximately three-fourths of the plants included in the sample can utilize economically the capacity released by any small cut in war orders to supply peacetime markets. Most of these plants are making their prewar product, and hence no problem of allocation of capacity between war and peace production is involved. A few plants which have devoted all or part of their plant to new war items would also be able to schedule some civilian production if war production drops even a small amount. Among these are Trico Products Company, which will increase production of windshield wipers when production of its ordnance items declines. Fedders Manufacturing Company could produce civilian goods without a decline in war production if Government-owned equipment were removed. Sterling Engine and Harrison Radiator would be able to schedule civilian items following a curtailment of 10 to 15 percent in war orders. The latter company could use the manpower freed to establish 3-shift operation on its commercial assembly line. If the reduction in war output of this plant amounted to 25 to 40 percent, however, civilian production could not be undertaken for 90 days and if the cut were larger, 8 or 9 months. Socony Vacuum Company could increase production of civilian gasoline with any reduction in war items, but prefers complete elimination of 100-octane production.

Some plants would not find it financially profitable to convert part of their facilities to civilian production unless sizable cuts were made in war production. National Battery Company, for example, would have to rearrange the plant and acquire new equipment; 75-percent reduction in war demand would be necessary to make feasible the production of storage batteries for automobiles. Colonial Radio Corporation would require a cut of 50 percent in war work and prefers complete termination of war production before resuming civilian production. Richardson Boat Company would not "break even" with less than a 50-percent drop in war work, but would enter the market to obtain good will after war needs declined as much as 25 percent; Bison Shipbuilding Company also prefers a 50-percent reduction but would enter civilian production with a smaller decline in war production. If the Buffalo Arms Corporation and Chevrolet Motor Aviation, Engine Plant No. 2 are to be operated after the war, all war production would have to cease before civilian items were scheduled.

COMMUNITY PLANNING.

Post-war planning on a community basis has been initiated by business and civic organizations and by some unions. The Niagara Frontier Post-war Planning Council, formed in January 1943, includes representatives of local government, business, and social agencies. The council in May 1943 prepared a comprehensive study, Niagara Frontier Post-war Employment Goals, showing the employment goals necessary for each industry if full employment is to be attained.

The Buffalo Chamber of Commerce has a post-war planning committee working closely with the Niagara Frontier Post-war Planning Council and the local Committee for Economic Development. Some city planning is also being considered--improved parks, waterfront, highways--and a study of post-war housing needs has been made.

Post-war planning by labor unions takes the form of adapting national plans to local conditions. Probably the most far-reaching union plan in the Buffalo area is that of the United Electrical, Radio, and Machine Workers of America, C.I.O. The national office of this union has begun the distribution of questionnaires to all locals, requesting information on plant reconversion problems, post-war production and employment possibilities, and similar questions. The locals in the Buffalo area are cooperating in this Nation-wide survey and, in addition, have taken steps to set up a subcommittee in North Buffalo and Tonawanda to work with the union's New York State committee on post-war planning.

Other union plans include the drive of the United Steelworkers of America, C.I.O., to obtain an annual wage guarantee to provide some measure of post-war security; 68 plants and locals in the area will be affected by these efforts. Some unions are urging maintenance of present weekly "take-home" pay after the work week is reduced, so that purchasing power will remain high. The Industrial Union Council of the C.I.O. is contemplating the organization of a post-war planning committee but plans are still in the initial phases.

POST-WAR PRODUCTION PROSPECTS

TYPES OF PRODUCTS.

As has already been indicated, the types of products which will be manufactured in the post-war period will generally be the same as those made before the war, and only a few companies plan to enter into the manufacture of completely new types of products. New designs and new models will, however, eventually be introduced, and a number of companies report that improvements will be made in the quality of their products.

SPACE AND EQUIPMENT.

Very few of the companies surveyed expect to expand plant space after the war and, in these, the additions will apparently be modest. On the other hand, 22 of the 35 companies which are in a position to assess their post-war needs report that some new equipment will be acquired. In some cases, these purchases will represent only normal or accumulated replacement needs. Some of the companies, however, plan fairly extensive additions. Bethlehem Steel Company expects to install a new bar mill. American Brass Company may add a rod mill. Various metals plants will purchase machine tools, foundry equipment, and welding instruments. The Carborundum Company will do a considerable amount of modernization when the war is over, for many new types of equipment have been developed which the company has not been able to install during the war period. It is believed that expenditures for equipment and space by the Carborundum Company will total between one and two million dollars.

A number of companies indicated that they would have a definite interest in purchasing some of the Government-owned equipment now in their plants, if prices were satisfactory. In some cases, if the Government-owned equipment is not purchased, similar machinery will be acquired to replace it. Curtiss-Wright would prefer to lease Government-owned equipment, with provision for a rental fee based on the number of hours the equipment is used. This company would not be in a position to pay full rental value immediately following the war, for production will be small for some period of time. The company might also be interested in leasing all the Government-owned facilities and subletting space to small manufacturers, paying a percentage of its receipts as rental fee.

LEVEL OF PRODUCTION.

Among the plants which provided estimates of the level of post-war production, those whose normal products are automobiles and parts, machinery, and radios were the most optimistic on the probable outlook. The Harrison Radiator Division of General Motors, for example, believes that operations may be maintained at the present rate, even though employment has nearly doubled during the war period. Plants manufacturing chemicals and metal products contemplate moderate advances in production over pre-war records. Companies in the remaining industry groups generally anticipate that post-war operations will be at about the same rate as in 1940. One exception is the F. N. Burt Company, which expects production to be double the 1940 level, partly because of the good will it has established during the war period, and partly because continued production of paper containers developed to conserve metals is expected.

In all, 31 plants were able to furnish rough estimates of post-war production levels. Sixteen of these plants anticipate that production will be about the same as in the pre-war period and 13 expect increases of varying amounts. Three firms anticipate advances of 20 to 25 percent over pre-war levels; 5 expect larger increases, and 5 state only that production will be "greater" than in 1940.

Two plants which were not in operation before the war also furnished estimates of post-war production level. At the American Magnesium Company it was reported that, at best, output would be one-third the present volume, since large markets for civilian use of magnesium will not materialize for some time after the war. The Bison Shipbuilding Company, now building landing craft, expects to construct tugs or cargo vessels, but operations will be sharply reduced from the wartime rate.

Three of the plants visited may not remain in operation when war production ends. The D-N-X Engine Company, organized in 1942, is using facilities leased from the Ford Motor Company which will be returned to Ford after the war. Buffalo Arms is operating a D. P. C. plant on which the Army Ordnance Department has first option, and post-war operations at this plant are indefinite. The Chevrolet Engine Plant No. 2 was sold to the Government at the outset of the war; it is believed unlikely that the plant will be repurchased and used for automobile assembly.

PRODUCTION COSTS.

Nearly all the plant officials interviewed expressed the opinion that post-war production costs would be higher than before the war, but few were able to estimate the extent of the increase. The rise in wage rates is cited as the most important factor contributing to higher costs. It is generally believed that there will be no decline in wage rates after the war, and a number of management representatives expressed the opinion that there should be no such reductions. Costs of materials were also reported to have advanced substantially, although the increase is generally considered less important than the increase in wage rates. In several cases, administrative expenses have risen during the war period. New employees have been added to handle personnel work, to prepare reports for Government agencies, and to perform similar new functions.

Production costs will probably be below present levels, however. Company officials believe that the efficiency of the available labor force will be increased. In addition, premium rates for overtime work and for the second and third shifts will be eliminated or substantially reduced. On the other hand, a few plants stated that the expected reduction in volume will result in higher cost per unit of output, since overhead costs are a significant proportion of total costs. These companies maintain that prices will have to rise above present levels.

In only 4 plants is it anticipated that costs will be below the 1940 level, and in only one of these is a substantial reduction expected. The American Magnesium Company estimates that costs will be 25 percent lower than in 1940, since significant improvements have been made in handling magnesium during the war period. The remaining 3 plants--International Paper Company, National Gypsum Company, and Worthington Pump and Machinery Company--expect small reductions in costs from 1940 levels.

WARTIME TECHNOLOGICAL DEVELOPMENTS.

Part of the increase in wage rates and materials costs over peacetime levels will be offset by improved efficiency due to wartime technical developments. While not all wartime developments will be applicable to civilian production, moderate advances are expected in efficiency of operations. The improvements reported have reduced labor requirements, lowered the costs of materials, or made possible improvement in the quality of the product.

Most significant have been the innovations, in metal working. A number of plants report that improvements in welding techniques and substitution of welding for riveting have resulted in improved efficiency. Curtiss-Wright has developed spot-welding techniques so that 1,800 welds can be made without changing the points; previously only 30 were possible. Alloys have been improved and experience has been gained in welding alloyed materials. Several companies state that quality control has been improved by the use of electronic devices, including magna flux, gamma ray, and X-ray. Experience gained in working to the close tolerances necessary on war items will probably also prove of benefit in post-war production. Other improvements mentioned are the use of tungsten carbide cutting tools, stack drilling, the installation of automatic safety devices on presses, the elimination of metal top dies by the use of rubber forming blocks, and increased use of automatic machinery.

Knowledge of methods of working the light metals has made great strides during the war period. American Magnesium Company reports that labor requirements have been reduced and the amount of scrap decreased by the development of superior molding machines and better sand mixtures. In addition, better methods have been developed to control the hazard of fire. At Worthington Pump and Machinery Company, output per man-hour has advanced 15 percent since 1940, a large increase for a plant which is not producing a new type of product. The rise is attributed to improved tooling, more complete jigging, and the use of tungsten carbide cutting tools, as well as to improved training of workers.

Improvements have also been made in processes other than metalworking. Several chemicals plants report that there have been technical developments which will carry over into peacetime production, but few details are available. National Gypsum Company has made substantial advances in manufacturing techniques and in developing improved products. Methods have been devised for speeding up the mixing time of plaster, new finishes have been developed, and better control of drying has been achieved, along with a decrease in drying time.

A few companies stated that no significant technical developments had occurred in their plants during the war period, but that they hoped to make progress in this respect after the war. American Brass Company may introduce some of the features of a D. P. C. plant operated by the parent company; the special purpose machinery in this plant is much more efficient than that ordinarily in use. Other company representatives believe that machine tools available after the war will be more efficient than those they now have and expect increased efficiency when new equipment is purchased. Some plants have done research work which has not yielded tangible results but which is expected, eventually, to be of benefit. In at least one establishment, the DuPont rayon plant, normal technical

progress has been interrupted during the war period because of the shortage of technical personnel and the difficulty in obtaining equipment and materials. Here it is believed that progress will be made after the war.

Not all the wartime developments will be applicable to peacetime production, however. Thus, at Curtiss-Wright Corporation, very substantial gains have been made in output per man-hour, but most of the advance is attributable to the fact that large quantities have been produced. It is believed, however, that research into welding techniques and into uses of new materials, e.g., laminated and impregnated wood, will be useful in civilian production.

SUBCONTRACTING.

A large number of the plants canvassed have been subcontracting some of their work. Of course, companies use varying definitions of the term "subcontract"; some use it to refer to all purchases of components, others restrict it to the performance elsewhere of work which they might have done themselves. Similarly, estimates of the percentage of work subcontracted are not made on any uniform basis. In many plants, subcontracting plays but a minor role in present operations and will be eliminated entirely after the war. The work sent out is usually machine-shop work which could be done in the plant if facilities and manpower were available. In other cases, subcontracting will be continued, but the proportion will be reduced sharply when normal operations are resumed. Thus, Worthington Pump and Machinery Company now subcontracts about 25 percent of its work, but after the war the proportion will be reduced to about 10 percent. At present the company buys machined castings; after the war, it will purchase rough castings and do the machining at the plant.

Subcontracting will also be eliminated or sharply reduced in some companies which now send out a substantial proportion of their work. Farrell-Birmingham Company, which manufactures marine gearings, subcontracted 70 percent of all work at the height of the production program. At the time of the interview, the proportion had been reduced to 30-40 percent, and it is improbable that any subcontracting at all will be continued after the war. Most of the subcontractors of this company have established businesses and will probably revert to their former products, although a few may become competitors of this company. At Ross Heater and Manufacturing Company, nearly 75 percent of all expenditure on labor is outside the plant on subcontracts for machining and assembly. This company plans to reduce subcontracting to weaken the impact of future cutbacks, and very little subcontract work will be continued after the war.

Only 2 plants expect to continue their present proportion of subcontracting. The Sterling Engine Company has always been an assembly plant. Subcontract work, in terms of value, now represents about 65 percent of the total and will probably remain at the same level after the war. The Bison Shipbuilding Company, formed in 1942, subcontracts work representing one-third the total value and will continue the same proportion after the war.

Two companies--Hewitt Rubber Company and Spencer Lens Company--expressed an interest in taking subcontract work for new items after the war, if such work were available. In neither case, however, had any definite plans for such work been made.

POST-WAR EMPLOYMENT PROBLEMS

SIZE OF THE POST-WAR LABOR FORCE.

Under the impetus of war activity, the 40 Buffalo plants included in the survey increased their employment from 45,700 in 1939 to 122,800 in May 1944, a rise of 169 percent. In manufacturing as a whole, employment approximately doubled during the same period. The probable reduction in employment after the war and the prospects for maintaining reasonably full employment are, therefore, of the utmost importance.

Any estimates of post-war employment prepared by plant officials are necessarily tentative, depending as they do on expectations as to general business conditions. Some of the company officials interviewed were prepared to make rather definite estimates of their post-war work force. Others, particularly those whose product is manufactured for sale to industrial users rather than to ultimate consumers, were reluctant to express any judgment on the size of their post-war labor force.

The greatest speculation on post-war trends naturally centers around the two aircraft companies, Curtiss-Wright and Bell, only the former of which was included in this survey. Curtiss-Wright officials estimated that no more than 10 percent of the present labor force of 42,000 would be required for post-war production of aircraft. Preliminary research work has been done on the possibility of producing streamlined aluminum busses and railroad-car bodies, but no engineering work has as yet been started. Ultimately, perhaps 8 to 10 thousand workers might be engaged in such production. Since engineering would require 9 months and tooling up an additional 6 months, and since it appears unlikely that engineering work will be started quickly, this activity does not appear to offer early post-war employment opportunities.

Rough estimates of post-war employment were available for 35 of the 40 plants included in the sample survey. Thirty-two of the plants were in operation in 1939 and employed 41,200 workers in that year, or 35 percent of the total for all establishments reporting to the Census of Manufactures. In May 1944, the 35 plants employed 109,700 workers. The combined estimate of post-war employment for these companies is 54,000, a total 31 percent higher than the peacetime level, but substantially less than the wartime number. Plants producing transportation equipment other than automobiles, including aircraft, expect the greatest rise over peacetime employment--96 percent. Nevertheless, the proportion of the wartime labor force which will be retained will be only a little over 10 percent. Auto companies expect employment to be 44 percent above 1939 levels, as a result of the general expectation that the demand for automobiles will be at unprecedented volume for several years after the war. Large advances over 1939 employment are also expected by companies in the machinery, except electrical group (49 percent) and the stone, clay, and glass group (42 percent). The chemicals, nonferrous metals, and electrical machinery plants expect increases of 20 to 25 percent over 1939 employment levels. Iron and steel, the area's largest manufacturing industry in peacetime, will apparently have a post-war labor force only 7 percent larger than in peacetime.

Spokesmen for the Buffalo Chamber of Commerce and for other local groups are optimistic about the post-war employment outlook for the area. It is assumed that the "war babies"--(the two aircraft firms, Buffalo Arms,

and several smaller war plants) will present the only serious adjustment problems and that the departure of women from the labor force will be sufficient to prevent any widespread unemployment. Many other plants have expanded enormously during the war period, however, and most of them anticipate substantial reductions in force after the war.

It is interesting to compare the views on probable post-war employment expressed by plant officials with the estimates made by the Niagara Frontier Post-war Planning Council on the employment goals needed in manufacturing to provide full employment.[1] The Planning Council stated that 175,000 jobs would be required in manufacturing if full employment were to be achieved, and presented a distribution by major industry groups.

On the basis of interviews with representatives of the sample plants, the Bureau of Labor Statistics has prepared estimates of probable post-war employment for several industry groups. The percentage change expected between 1939 and post-war by the sample plants in each industry group was applied to total 1939 employment in that group to obtain the probable post-war employment total. Estimates were made only for those industry groups in which the sample plants represented a substantial proportion of total employment in 1939--automobiles, other transportation equipment, electrical machinery, machinery (except electrical), iron and steel, nonferrous metals, chemicals, and stone, clay, and glass. The sample plants in the machinery (except electrical) group accounted for 28 percent of total employment in the group in 1939. In the other industry groups, employment in the reporting plants ranged from 46 to 65 percent of the group totals reported by the Census of Manufactures for 1939. The estimates based on the interviews are compared with 1939 employment and with the Niagara Frontier full employment goals in table 3.

TABLE 3.--EMPLOYMENT IN MANUFACTURING, 1939, AND POST-WAR ESTIMATES, BUFFALO INDUSTRIAL AREA

Industry	Employment in 1939	Probable post-war employment (plant interviews)	Full-employment goals (Niagara Frontier)
	(All figures in thousands)		
Automobiles	10.0	14.5	15.2
Other transportation equipment	5.6	11.0	13.9
Electrical machinery	4.9	5.9	9.0
Machinery, except electrical	6.9	10.3	12.2
Iron and steel	24.9	26.8	31.9
Nonferrous metals	2.9	3.5	8.5
Chemicals	12.8	16.1	20.4
Stone, clay, and glass	5.6	8.0	11.0
Total, above industries	73.6	96.1	122.1
Other industries			
Paper	5.5	---	6.2
Printing and publishing	6.3	---	6.4
Food	13.7	---	15.7
Textiles and apparel	6.3	---	6.3
Wood products	3.3	---	4.7
Rubber	2.8	---	4.1
Petroleum, coal, leather	2.0	---	2.7
Miscellaneous	3.7	---	7.2
Total, other industries	43.6		53.3

[1] Niagara Frontier Post-War Employment Goals, May 1943.

It will be noted that the estimates of "probable" employment are below the goals set for full employment in each of the industry groups for which figures are available. Even if it is assumed that full-employment goals are the most probable levels for the industries for which no estimates could be made, total manufacturing employment still appears to be 26,000, or 15 percent, short of the full-employment goal. If the industries not included do not reach the desired employment goals, the deficiency of jobs may be even greater.

Several qualifications should be noted. The plants have been combined only into broad industry groups and only a sample number were canvassed in each group. The estimates are, therefore, subject to a certain amount of understatement or overstatement of probable trends. New plants may come into existence after the war which will provide additional employment opportunities. On the other hand, there is some evidence that the estimates made by plant officials were rather optimistic and that those plants with the best post-war prospects were those most willing to furnish estimates.

EMPLOYMENT DURING RECONVERSION.

The technical problems of reconversion will not be serious in most of the plants visited. Most companies envision the possibility, even the probability, of a smooth transition in employment from the wartime to the post-war level. A few companies, however, anticipate substantial reductions in force for periods varying from a few weeks to several months. Colonial Radio Corporation, for example, estimates that during a 60-day reconversion period employment will be only 700, compared with a full-production total of 2,200. The Harrison Radiator Division of General Motors expects that there may be a 30-50 percent reduction in employment for a very few weeks during retooling. At Remington Rand, Inc., which has changed the nature of its product completely during the war, employment may be cut to half during reconversion. Technical requirements, however, will not be the sole determinants of the size of the work force during reconversion. At least one plant, the American Magnesium Company, indicates that it expects a substantial curtailment in employment after war production is completed because no orders for civilian products may be available for a considerable time. In other plants, also, the volume of employment immediately following the completion of war production may depend more on the amount of business in sight than on the technical problems of retooling.

EMPLOYMENT AND PRODUCTION.

While the level of employment will be influenced by the volume of production, in many plants employment does not vary directly with production or sales. Plants can change the proportion of work that is subcontracted, and, in general, prime contractors would decrease the proportion of subcontract work if orders were curtailed. Moreover, in some plants there is a substantial amount of "indirect" labor. Thus, an increase in production above 1940 levels would not involve a corresponding increase in labor requirements; similarly, if production fell short of the 1940 volume, the curtailment of employment would be less than proportional.

SKILLS AND RETRAINING.

Since the nature of the product will not change radically in most of the plants with the shift to civilian production, the skills required for post-war operations will be essentially the same as those needed at present.

Plants which have to do extensive retooling for peacetime production will, of course, require toolmakers and skilled machinists, but in most cases the necessary workers are available. Where shifts in skill requirements occur, they will sometimes be in the direction of greater skill, sometimes lesser skill. Thus, the American Brass Company reported that more highly skilled workers will be needed for the lighter products which will be produced after the war. At Curtiss-Wright, on the other hand, if production of aluminum streamlined railroad cars were undertaken, far less precision work would be required than is involved in plane production.

While no special retraining of the work force will generally be necessary, a number of plants expect to continue training programs introduced during the war period. Some plants are planning to maintain the essential features of the Training Within Industry courses after the war, and some will probably continue other special training programs. A number of companies anticipate the need for special training programs for returning veterans. One plant, Pratt and Letchworth Company, expects to retrain veterans in the wartime training school established in the pattern shop. This school has been used very successfully during the war to train vocational school graduates as pattern makers and machinists.

Although no deliberate effort will be made to increase the skill levels of the work force after the war, many plants expect that the proportion of skilled workers will rise as a result of the return of veterans and the displacement of women and other new workers. In this process, there will be some demotions, and workers who have been advanced during the war period may go back to jobs they held before the war.

EMPLOYMENT OF WOMEN.

Women employees constituted 32 percent of the work force in the 40 sample plants in May 1944. In those plants in operation in 1939, the proportion was only 11 percent. Women made up the largest proportion of total employment in May 1944 in the 2 paper companies (60 percent), the Hewitt Rubber Company (52 percent compared to 11 percent in 1939), Remington Rand Company (48 percent), and in the plants producing transportation equipment other than automobiles (40.1 percent). In the latter group is the Curtiss-Wright Corporation, of whose work force 41 percent were women. In other plants, while the percentage of women employees was not large, it had risen substantially from the peacetime number. Among the plants in the survey, the change between 1939 and May 1944 in the percentage of women was from 6.5 to 18.1 in chemicals, from 2.0 to 16.2 in iron and steel, from 3.3 to 13.2 in nonferrous metals, from 5.7 to 19.3 in machinery (except electrical), from 18.1 to 35.9 in automobiles plants, and from 17.3 to 37.5 in stone, clay, and glass.

Practically all companies expect very great reductions in the employment of women after the war. In nearly half the plants, management officials would prefer to have a smaller proportion employed after the war than at present. The preference for male employees in most plants is based on the fact that management considers their work performance superior to that of women. The work involved in the manufacture of chemicals, metals, and machinery is considered too heavy for women, except as a war-emergency measure. Other deterrents to employment of women are also noted. Most important is the fact that while women are suitable for certain operations, they cannot be transferred easily from one job to another if the necessity arises. Where the size of the labor force will be reduced

substantially after the war, it will be important to have employees who can perform several different jobs. A few plants stated that turnover or absenteeism was higher among women than among men. In one company, Remington Rand, it was reported that the special facilities and counsellors required when women are employed make their retention impractical. Legal provisions are also cited as reasons for discontinuing the employment of women, particularly in chemicals, where heavy lifting or use of dangerous chemicals is involved. The New York State law providing that women cannot work after 10 o'clock at night would limit the employment of women where plant operations are continuous.

A number of companies report that the performance of women has been satisfactory, but that a reduction in the proportion of women is expected because of voluntary withdrawals from the labor market and the return of veterans. In some of these plants, the proportion of women will probably remain somewhat above the pre-war figure. At the Carborundum Company, for example, new operations have been developed during the war to make possible greater utilization of women; post-war employment of women is, therefore, expected to be greater than pre-war. The management at Fedders Manufacturing Company would prefer women employees to the extent of 25 percent of the total and will keep this proportion if the union will agree. Trico Products Company, manufacturers of windshield wipers, finds women better than men on small assemblies.

It seems clear that many women will be released as the labor force is cut and as veterans return, whether as a result of management policy or seniority arrangements. Most of the women employees have little seniority and in addition, a number of the union agreements permit or require the release of women regardless of seniority. The American Magnesium Company has an agreement which states that women are to be employed in the plant only for the duration. A similar but less sweeping agreement is in effect at Colonial Radio Company; women can be employed on mens' jobs only during the war and thereafter the consent of the union is required. At the General Motors plants, the company-wide master union agreement provides for separate seniority lists for men and women.

The proportion of women employees after the war, therefore, may be only slightly greater than in the pre-war period. Of the plants sampled, the most favorable employment opportunities will exist in those industries which employed substantial numbers of women in peacetime--paper, electrical machinery (especially radio), and, to a lesser extent, automobiles. The Niagara Frontier Post-War Planning Council estimates that after the war 34 percent of all women over 14 will be in the labor force, compared to 26 percent in 1940. Apparently, these manufacturing concerns do not expect to offer very greatly increased employment opportunities for women.

EMPLOYMENT OF NEGROES.

While the Negro population of this area is small, several plants employ a substantial number, particularly foundries and chemicals plants. In some companies, no Negroes were employed before the war and, in others, the number has increased during the war period. Negro employees generally have little seniority and may be displaced by returning veterans. Most plant officials reported that the work performance of the Negro employees was satisfactory and that it would not be company policy to release them. Of 11 management representatives who ventured to make estimates of post-war employment of Negroes, 5 stated that there would be no great change. The other 6 expected some decreases because of the necessity for reemploying veterans.

EMPLOYMENT OF VETERANS.

Local agencies and company officials are devoting increasing attention to the problem of reemploying veterans. A veterans' information center was recently opened in a prominent downtown location. Veterans are exempted for 60 days after their initial employment from controlled referral and from plant employment ceilings. Since a satisfactory adjustment is not always immediately reached, the local U.S.E.S. has been working with employer groups on the problem. Conferences of employment managers with a pyschiatrist who speaks on the problems of reemploying ex-servicemen have been arranged. Practically every plant official interviewed was emphatic in his conviction that the plant would do everything possible to reemploy veterans when they returned.

A number of plants expect to go beyond any legal requirement in rehiring employees who return from the service. In some cases, the company will not insist that the application for reemployment be made within 40 days after discharge, as provided by law. Linde Air Products Company states that it will be favorably disposed towards hiring veterans even if they are not former employees of the company. The Colonial Radio Corporation expects to reemploy its veterans and the union expressed its desire to help rehabilitate any veterans who may need aid, even to the extent of abrogating seniority arrangements. Trico Products Company plans not only to rehire veterans but to train them for better jobs if they are qualified, for the company recognizes that morale problems may arise if men with good service experience are placed in menial tasks.

Most detailed advance planning on reemployment of veterans appears to have been done at the DuPont Electro-Chemical Department at Niagara Falls. A full-time coordinator may be employed to place and follow up war veterans, and a card index is being prepared with the case history of each man in service, including any new skills learned since he entered the armed forces.

While most plants do expect to make every effort to reemploy veterans, it is recognized that a number of problems will arise. In some plants, the number of employees in the armed forces is equal to or greater than the total pre-war employment. Even where this situation does not prevail, there are in some cases as many as 6 or 7 men now in the armed forces who held the same job prior to induction. A number of plants state that most of the work is heavy and that there are only a limited number of jobs which disabled veterans can fill. Plants which have already had experience with returning veterans agree that careful placement and follow-up are are essential, and many companies expect that some retraining program will be necessary for returning veterans.

In one company, Harrison Radiator, it was anticipated that very serious problems would arise if the Selective Service Act were interpreted to give veterans absolute preference. Management here believes that veterans should accumulate seniority while in the service but should have no other special preference. It was reported that the union position agreed with that taken by management.

CUTBACK EXPERIENCE

PLANTS AND WORKERS INVOLVED.

Sixteen of the plants included in the sample of 40 have already had cutbacks in production due to cancelation or revision of contracts. One of these companies, American Shipbuilding, had no cutback in the usual sense but finished a large war program and reverted to its peacetime activity. Of the 16 plants, 11 were forced to lay off workers permanently or temporarily; the other plants were able to avoid lay-offs by transferring employees to other work.

In all, approximately 5,000 workers were laid off in the 11 plants where terminations were necessary. In some instances, however, decreases in net employment were greater than the lay-off data indicate, since encouraged quits and normal separations resulted in reduction in force considerably in excess of the number laid off.

WAR PROGRAMS AFFECTED.

Approximately two-thirds of the workers laid off were working in 5 plants producing items for the aircraft program. Lay-offs in the 2 Chevrolet plants alone accounted for nearly 60 percent of total lay-offs; they were occasioned by a decrease in 14-cylinder aircraft engine production and introduction of 18-cylinder engines. Approximately 3,000 women were temporarily laid off in these 2 plants. Lay-offs due to changes in the shipbuilding program account for another 25 percent of total lay-offs. The remaining 9 percent of total lay-offs were made in 3 plants. Colonial Radio Company temporarily laid off 400 workers (95 percent women) following a cutback in high frequency radio transmitters and receivers for the armed forces. These women will be reemployed by November 1944 when retooling is completed and new production is under way. Cutbacks in tanks, half tracks, and ordnance items in 2 other plants resulted in the remaining lay-offs.

Five plants had cutbacks but no lay-offs. Cutbacks in four plants involved ordnance items, and in the fifth, a shift from construction of components for destroyer-escort vessels to components for landing craft. None of the six chemicals plants in the sample were cutback, and the iron and steel plants were only slightly affected.

EFFECT ON PLANT PRODUCTION.

The effect of the cutbacks on total plant production of war items varied considerably from plant to plant. At one extreme, the 3 yards of the American Shipbuilding and Drydock Co. discontinued all shipbuilding activity after completing the construction of 8 tugs and rebuilding 2 aircraft carriers. This company reduced employment from 1,278 in May 1943 to 86 in June 1944 and returned to its normal business as a drydock. Most other companies suffered decreases in total production, but later regained all or part of their previous volume. Farrell-Birmingham experienced 15 or 20 cutbacks in war contracts, the most important ones involving gear units for destroyer-escort vessels. This plant eased the adjustment by a program to convert some completed units to a new design. The Navy is removing machinery from this plant, however, for use elsewhere, and production will be lower than before the cutbacks. Similarly, Houde Engineering was able to ease the impact of reductions

in aircraft and ordnance contracts with new work, but not to an extent sufficient to obviate the release of 376 workers.

A number of plants had cutbacks that necessitated some retooling before new production on the same facilities could begin. In this category are the 2 Chevrolet plants and Colonial Radio Corporation. The Chevrolet plants began lay-offs of 3,000 women in the spring of 1944. Retooling for the production of 18-cylinder aircraft engines in Engine Plant No. 2 began in March 1944 and was expected to be complete by July. New types of machine tools, new equipment, and general rearrangement of the plant were necessary. Similar problems developed at the River Road (Station D) plant and both facilities planned to commence rehiring in July.

Colonial Radio Corporation received a cutback necessitating retooling, transfers, and lay-offs. A Signal Corps contract was canceled in February 1944; 400 workers were terminated and 200 transferred. Plans for production of subassemblies under the new contract had already been made, initial samples having been sent to the Government in October 1943. In 1944, flight tests were made; initial production is scheduled for September and deliveries for December 1944. One hundred workers had been recalled at the time of the interview in June and the remaining 300 will be recalled by November 1944.

The other plants in which retooling was necessary were Trico Products Company, the D-N-X Engine Company, Houde Engineering, and Buffalo Arms. Cutbacks in the Trico Company required from 2 to 4 months retooling. At the D-N-X Engine Company, a change in the design of the diesel engine required considerable retooling and 80 workers were laid off over a period of 4 months. When production on the re-designed diesel engine picks up, 50 or 60 new workers will be hired. Houde Engineering Division also had to do some retooling following cutbacks. Buffalo Arms Corporation spent about 4 months retooling, following a change from a .30 to a .50 caliber gun, but a change from 2 to 3 shifts eliminated the need for lay-offs.

NOTICE OF CUTBACKS.

Notice of cutbacks varied from advance warning of several months to orders for immediate cessation of work. Not all plants which experienced cutbacks were prime contractors, however, and it was not always possible to determine how much notice the prime contractor had received. In one instance (Pratt and Letchworth Company) the subcontract for half-tracks was almost entirely eliminated without advance notice from the prime contractor, who had himself received no notice from the procurement agency. Houde Engineering received notices of most of their cutbacks in the form of telegrams instructing the plant to "stop all work." Two other companies (D-N-X Engine Company and Remington-Rand) were not given advance notice by the Navy.

In several instances, notice appears to have been adequate. The Chevrolet plants received several months notice that production of 14-cylinder engines was to be reduced and 18-cylinder engines added to the contract. This notice made it possible to plan gradual reduction in staff and to permit normal turnover to reduce the number of lay-offs. The 60-day notice received by American Magnesium Company to reduce schedules for castings allowed the plant to make one-half the necessary employment adjustment by means of normal turnover. Notice of cutbacks was considered sufficient by both Farrel-Birmingham and Colonial Radio Corporation, although lay-offs were unavoidable in both instances.

In general, plant officials expressed the opinion that advance notice should be given wherever possible. The indications are that those plants which received notice a month or more in advance were able to readjust both employment and production more effectively.

EMPLOYMENT ADJUSTMENTS.

Employment adjustments necessitated by the cutbacks took 3 forms: changes in hours and shifts, reductions in force, and transfers. In general, changes in hour and shift arrangements were not made when cutbacks were small, and working hours were not generally reduced below 48 per week. Two plants (Farrell-Birmingham and D-N-X Engine), where hours were extrenely long, reduced hours to 48 per week, however; 1 plant returned to its prewar workweek of 40 hours. Fedders Manufacturing Company eliminated the third shift, laid off 50 workers and transferred 400 following termination of a contract for .50 caliber belt links--70 percent of total plant production.

LAY-OFF PROCEDURES.

Ten of the 11 plants where lay-offs were necessary selected the workers to be terminated on the basis of seniority. Plantwide seniority was the criterion used in one-half of these plants and departmental seniority or seniority by non-interchangeable occupational groups in the rest. In the 2 Chevrolet plants, the union agreement provides for seniority status within non-interchangeable occupational groups and men and women are listed separately. The management of one of these plants, however, reported that the 1,200 women were laid off as they finished work on the parts they were making. The regional office of the union indicated that the seniority provisions of the contract had been violated and that the local office of the United Automobile Workers, C.I.O., had been instructed to arbitrate. Whether this action would be taken, however, was not certain, since there are indications that the union locals may not be as interested in retention of women as the national and regional bodies.

In one company (American Shipbuilding Corporation) workers were released as the operations on which they were engaged were completed, in accordance with the provisions of a master contract with various A. F. of L. unions.

The lay-off policies described above, in the 11 plants affected, involved plants with union agreements. in all but one case, that of the D-N-X Engine Company. In this plant, company policy determined lay-offs on a plantwide seniority basis; the agreement with the U.A.W. not having been signed at the time of the interview. Among the other 10 plants, 8 had agreements with the C.I.O., one with various A.F. of L. unions, and one with District 50 of the United Mine Workers. In most of those agreements, seniority applied equally to all workers covered, without regard to sex. The 2 Chevrolet plants, however, have separate seniority lists for men and women. Another plant (Remington Rand) places union shop stewards near the top of the seniority list.

When lay-offs became necessary, the plants usually notified the U.S.E.S. if more than a few workers were involved. In other instances, workers laid off were given certificates of availability and referred to the U.S.E.S. for placement; many workers had already located jobs and went to the U.S.E.S. only for clearance. The Chevrolet plants, with

lay-offs of 3,000, had no U.S.E.S. representative at the plant inasmuch as the lay-offs were temporary. Colonial Radio Corporation, on the other hand, worked closely with the War Manpower Commission. The U.S.E.S. helped place these workers in temporary jobs and gave the company permission to recall the 400 workers as needed.

NOTICE OF LAY-OFFS.

Notice of employment termination often was inadequate due, in part, to insufficient advance notice of cutbacks. Some of the plants gave only one day's notice to employees, and one plant (Houde Engineering) gave notice at the beginning of the shift that lay-offs were effective at the end of the shift. This plant had not generally received advance notice of cutbacks. Farrell-Birmingham Company attempted to give a week's notice where possible, but was not always able to do so. American Magnesium Company gave about a week's notice.

Notice of lay-offs was generally given to the union further in advance, and in some cases the union participated in implementing the lay-off procedure. American Magnesium Company and Colonial Radio Corporation discussed the cutbacks with the unions and the labor-management committees. In the Colonial Radio plant, foremen, supervisors, and union shop stewards maintained personal contacts with the workers and no difficulties were encountered. In the Chevrolet plants the union and management have weekly meetings and cutbacks were discussed together with other business. Houde Engineering proposed a reduction of hours from 48 to 40 but the union rejected this procedure, inasmuch as work was still available for members in the area. The union was notified 48 hours in advance and had access to the seniority list. Lay-offs at Fedders caused a dispute as to whether skill or seniority should govern, but the union and management finally agreed on departmental seniority. Although plants in which lay-offs were necessary usually discussed procedures with the unions, Farrell-Birmingham Company merely informed the union that there would be lay-offs.

RECALL EXPERIENCE.

Six of the 11 plants that laid off workers made or will make efforts to rehire them later. In 5 of these plants, workers were told that the lay-offs were temporary and that they could expect to be recalled. The sixth plant, Pratt and Letchworth Company, laid off only 5 or 6 workers and has had no success in recalls. The 2 Chevrolet plants plan to rehire the 3,000 women laid off. Interviews with some of the women at one plant reveal that most wish to return; the wages are relatively high in this plant and few of the women have sought other employment. Colonial Radio Corporation had already rehired 100 of the 400 workers laid off by July 1944. The lay-offs in this plant were made with the understanding that they were of a temporary nature and that workers would be rehired according to the seniority provisions of the union contract. Of the first 100 offered jobs, 85 returned, 5 had other jobs they did not wish to leave, and 10 were "not interested." At the time of the interview, the War Manpower Commission had not decided whether to grant releases to former workers who had taken temporary jobs, but the union expressed confidence that the company would succeed in obtaining W.M.C. approval to rehire these workers. Remington Rand was able to rehire within 3 weeks most of 20 workers laid off. When the American Magnesium Company asked women who were to be laid off to take a 30-day leave of absence, only 2 requested certificates of availability.

Five plants had lay-offs but made no efforts to recall the workers. In four cases the lay-offs were permanent; in one, D-N-X Engine Company, employment was expected to expand again but the management expressed doubt that laid off workers could be recalled.

TRANSFER POLICY.

Transfers of workers generally followed the same plan as lay-offs. Seniority was consequently the criterion used in most plants, provided the workers had the avility to perform the duties of the new jobs.

In some plants transfers were an important part of the employment adjustment process. Fedders Manufacturing Company laid off 50 workers and transferred 400; Farrell-Birmingham Company laid off 100 and transferred 100; Colonial Radio Corporation laid off 400, transferred 200; American Shipbuilding laid off more than 1,000 and transferred 100 to other yards outside the area; and the Chevrolet plants made numerous transfers.

In most instances transfers were made at the same rates of pay. Exceptions were Houde Engineering Division and Farrell-Birmingham Company where transfers generally involved wage decreases. In these plants there was a tendency for workers to quit rather than accept lower wages, inasmuch as further lay-offs were anticipated and little security could be offered.

Transfers required training of workers in some instances. On-the-job training was most prevalent, lasting from 2 or 3 days up to 5 months. In general, no new skills were required and in most plants the training period took only a few weeks. In one instance (Fedders Manufacturing Company), 3 to 5 months on-the-job training was necessary before the 400 transferees were fully qualified. Training involved learning to work with light aluminum, whereas steel had been used before. Spoilage increased considerably but there was insufficient time for more adequate instruction.

EFFECT OF CUTBACKS ON MORALE.

The effect of cutbacks on the morale of workers apparently varied both with the nature of the cutback--whether temporary or permanent--and with the degree of union-management cooperation attained. In two plants with labor-management committees morale did not suffer and production per worker actually increased at one of these plants. In a third plant (Trico Products Company) with a satisfactorily functioning labor-management committee, there is a contest between three rival unions for bargaining rights, and morale has suffered from this more than from the cutbacks. Morale at one Chevrolet plant decreased somewhat but not seriously. The most serious effect of cutbacks on morale was found at Farrell-Birmingham Company. At this plant there had been no word to workers concerning the cutbacks, the union did not participate, and there was no labor-management committee.

On the other hand, at Colonial Radio Corporation, where the union has been recognized for over 10 years, cutbacks had no adverse effect on morale, largely because of the work of the labor-management committee. Approximately 150 worker and management representatives participate in aiding the steering committee, and both management and union expressed complete satisfaction with results.

GENERAL CUTBACK PROCEDURES FOR ALL PLANTS.

If lay-offs become necessary in the plants which have not yet had cutbacks, the same procedure will generally be followed: It is probable that seniority will be much less important in determining lay-offs in the chemicals industry than in other industries, however, inasmuch as most of the chemical plants either have no unions or have independent unions that do not stress seniority to the same degree as nationally affiliated unions.

Almost all plants will reduce hours before significant lay-offs are made; only one company--Richardson Boat Company--expressed a desire to maintain the 48-hour week to provide high take-home pay. All other plants will return to a workweek of 40 or fewer hours as soon as permitted, as an economy measure and to support employment.

Practically all of the plants included in the survey are covered by union agreements. In general, the agreements with nationally affiliated unions specify that seniority shall determine lay-offs, and those with independent unions give the plant more latitude to use qualifications or ability as a criterion, although a few companies have adopted seniority as a matter of policy. Of the 40 plants, 22 have agreements with C.I.O. unions (2 are being negotiated); 4 have agreements with A.F. of L. unions; 7 with independent unions; 2 with District 50 of the U.M.W.; one has a C.I.O. union in the office and A.F. of L. in the plant; 1 plant recognizes an independent and an A.F. of L. union.

In most plants, there will be transfers from job to job following cutbacks. In general, however, management officials anticipate little training difficulty as a result of transfers; training will be done on the job in almost all cases and will require from a few days to several months.

EFFECT OF CUTBACKS ON THE COMMUNITY.

There are indications that the cutbacks have resulted in some decrease in community purchasing power as well as in withdrawal of workers from the labor market. A representative of the United Automobile Workers, C.I.O., expressed the opinion that lack of planning for transfers of workers from plants which had reduced production to plants with need for workers has resulted in lower morale and return of women to their homes. The task of persuading these women to re-enter the labor market is almost impossible, and both the war program and family income suffer.

Even when workers take other employment, purchasing power is almost certain to decline. Most of the workers affected by cutbacks were employed in plants which pay relatively high wages (for example, Houde Engineering, the Chevrolet plants, and Colonial Radio) and it is unlikely that many workers laid off obtained wages as high in new jobs. Thus far, however, workers released as a result of cutbacks have been able to obtain other jobs in the area.

SUGGESTIONS FOR GOVERNMENT ACTION

PLANT SUGGESTIONS.

Almost two-thirds of the plant officials interviewed made suggestions concerning action which the Federal Government might take to facilitate reconversion. Most of the management representatives emphasized the desirability of speedy audit or settlement of contract claims; American Brass Company recommended settlement on a plant-wide rather than on an individual contract basis. Companies also indicated the need for adequate advance notice from Government to prime contractors and from prime contractors to subcontractors of changes in specifications and of contract terminations. In general, gradual tapering off of war demand was considered preferable to abrupt termination. Such gradual reduction would alleviate surplus material problems, allow adequate notice to subcontractors, unions and workers, and permit more orderly planning for civilian production.

Several plants made suggestions concerning the disposition of Government-owned facilities and materials. Generally, wherever the equipment or material cannot be utilized for peacetime production, plants desire its removal from the premises as soon as possible. Sale of usable Government property at reasonable prices is desired by plants having such equipment, but one plant, Curtiss-Wright, would prefer to rent the D.P.C. plant space and equipment. Some plants apparently believe that the price of Government-owned equipment should be maintained, inasmuch as its cheap disposal to competitors would foster "unfair competition." F. N. Burt Company, for example, takes this view, and Remington Rand is concerned over the possibility that Government-owned office equipment may be sold at too low a price.

A few plants made suggestions concerning Government policy regarding cutbacks. American Magnesium and Buffalo Arms suggested that cutbacks should be made first in plants which are able to convert to other production. Colonial Radio Corporation suggested that reconversion of the radio industry should follow the quota procedure used in resuming flatiron manufacture.

Almost all of the plants making suggestions recommend that wartime material, manpower, and price controls be removed as soon as possible, but they suggest that relaxation be gradual. Rapid release of materials to plants receiving cutbacks was suggested, and one plant recommended that certain standard surplus materials--rivets, bolts, sheet aluminum--be earmarked for post-war use.

A few other suggestions were made. Bison Shipbuilding Company recommended improvement of the N. Y. State Barge Canal by the Federal Government as an attraction to new industry and an aid to transportation from the Great Lakes to the seacoast. Federal aid for municipal public works and relaxation of restrictions on industrial and municipal power projects were recommended by two other plants--Sterling Engine Company and Ross Heater and Manufacturing Company. Remington Rand recommended that authority of Government officials who handle procurement be more clearly defined. Trico Products Company expressed interest in modification of present policies concerning renegotiation of contracts. The company believes that elimination of profit on strictly war items is justified, but feels that the company's own product now sold to the Government should

be exempt from renegotiation. The Carborundum Company recommended elimination of the excess profits tax so that industry can accumulate reserves with which to finance reconversion.

UNION SUGGESTIONS.

Union representatives, like management officials, stressed the importance of a smooth transition from war to peace production. The subregional office of the United Automobile Workers of America, C.I.O., suggested closer integration of Army and Navy plans for cutbacks with manpower controls, so that persons released in one plant could be quickly transferred to plants where workers were needed. As an example of satisfactory procedure, the union cited an instance wherein a Lockport, N. Y. company notified the union of a shutdown; the union furnished General Motors Corporation with the names and addresses of those laid off and the entire group was re-employed the following day. A representative of the International Association of Machinists, A.F. of L., suggested that the Government make immediate plans for re-employment of workers laid off by small plants--particularly machine shops--since these workers may be laid off before the large prime contractors are cut back.

Practically all union representatives emphasized the need to plan for full employment. Legislation was urged to provide for adequate unemployment compensation during reconversion, retraining programs, and payment of travel costs of workers from war centers to their homes. The United Steelworkers of America, C.I.O., stressed the need of heavy industry for post-war markets and advocated long-term reconstruction credits to other nations to stimulate demand for steel and other products of basic industry. The regional office of the United Electrical, Radio, and Machine Workers of America, C.I.O., expressed the opinion that industries should be able to finance reconversion from tax refunds and that the Government should see that such funds are used to assure maximum employment.

CONCLUSIONS

Companies in this area will face a variety of problems in converting to civilian production. About one-fifth of the plants included in the sample, particularly those in the automobile industry, will have to do a considerable amount of retooling before civilian production can be undertaken. A similar number of plants will have other reconversion problems--e.g., disposition of Government-owned materials and equipment and acquisition of scarce materials and components. At least six of the 40 companies canvassed will need sizable reductions in war orders to make profitable the resumption of civilian production. A few establishments will not be in a position to begin planning for post-war production until the question of ownership of facilities is settled.

Nevertheless, management officials state that serious reconversion difficulties will not arise if the transition from war to peace production is planned in an orderly manner. If all war production were terminated suddenly, many plants would face difficult adjustment problems and some would not be able to produce goods for civilian use without a considerable delay. A gradual reduction in war production together with a gradual increase in civilian output would enable most plants to handle

reconversion with a minimum of dislocation. For companies which cannot enter into civilian production without large reductions in war work, the transition to peacetime production would be facilitated by sufficient notice of contemplated changes in production schedules. Such notice might permit detailed planning for peacetime output while war production continued.

Post-war employment will fall considerably short of full-employment levels, if the estimates made by company officials are accurate. Since this area is one of diversified industry, its post-war position will probably be more favorable than that of many other areas. This case study, therefore, indicates the need for immediate Nation-wide planning, if the generally accepted goals of full employment of labor and resources are to be achieved. Evidently, full employment will not be attained without a departure from thinking in terms of prewar production volume and a concerted attempt to develop policies which will promote a high level of post-war production.

APPENDIX

DETAILED COMPANY REPORTS

CURTISS-WRIGHT CORPORATION
Airplane Division
Cheektowaga, N. Y.

WAR PRODUCTION.

Curtiss-Wright produces two types of planes at its Buffalo plants--the C-46 "Commando," a two-engine, 4000 h.p. transport plane, and the P-40 "Warhawk," a single-engine, 1150 h.p. fighter plane. Production of the P-40 has been declining and will probably continue to decline. The need for the C-46, however, has been great and it was believed at the time of the interview that no significant cutbacks would occur until all war production declined substantially.

Production of these planes has involved constant changes in design, which have absorbed practically all the time of the engineering staff. Some models produced by the company have undergone 300 major design changes, and even small modifications in parts have frequently necessitated extensive redesign of the entire plane. When changes are ordered, they must be made in all planes which have not yet reached the work station affected; planes which have passed that station are taken to the Modification Center where the necessary changes are made.

RECONVERSION PLANS.

Although Curtiss-Wright did have a plant in Buffalo before the war, production was only a fraction of the output of the new facilities. The outlook for post-war production, therefore, is still quite indefinite. Practically all facilities are owned by the Defense Plant Corporation, a factor which is a further deterrent to specific post-war planning. Moreover, as has already been mentioned, the technical staff is so completely engaged in work on current production that the design and engineering of post-war products has been possible only to a very limited extent.

Although technical plans have not yet been developed, there has been considerable thought and business research devoted to post-war problems. The company has set up an elaborate organization for market research. A year and a half ago, a Development Division was established to investigate new inventions and post-war possibilities for various products. This Division, located in Bloomfield, New Jersey, now employs about 200 people. More recently, groups for business research and scientific research, called Post-War Committees, have been established in the three divisions of Curtiss-Wright--Engine, Aircraft, and Propellor. These groups call on the Development Division when its facilities are most appropriate for their research. There is also a Post-War Committee for the corporation as a whole. The post-war committees of the corporation and of each of the divisions meet regularly every three weeks.

The company expects that, at best, aircraft production after the war will be 10 percent of the present output. Investigations have been made of the possibility of converting to the production of cargo planes for civilian use, but it is believed that the post-war demand for cargo carriers will not be large. Somewhat more promising is the outlook for producing passenger planes, but available markets are also not expected to be very great.

A careful study has been made of the possible markets for streamlined aluminum bodies for railroad passenger cars, freight cars, and motor busses. A preliminary report on this subject has been prepared by the Business Research unit of the Airplane Division in Buffalo for presentation to the Post-War Committee of the corporation. Much of the D.P.C. equipment now in the plants could be used for the manufacture of such products.

The company has a 5-million dollar investment in a research laboratory which employs a staff of 240. Much of the work conducted is concerned with present production, but it is believed that some of the developments will also be applicable to post-war use.

The time necessary for reconversion will vary, of course, for different types of products. For example, in the case of aircraft, in normal times 4 years generally elapse between the inception of plans for commercial planes and their final development and acceptance by the airlines and the Civil Aeronautics Board. If the planes were of a radically new type, 8 years might be required.

For products other than planes, however, the reconversion interval will be much shorter. The company has estimated that it would take 9 months to complete engineering details for the production of streamlined cars. If designs on the planes now being produced were frozen and production tapered off gradually, a large part of the engineering staff could be freed for such technical work. Detailed engineering plans could then be made for postwar production while war work continued. The construction of tools and jigs would require an additional 6 months.

POST-WAR PRODUCTION.

Plans for the acquisition of plant space and equipment for civilian production will be determined largely by Government policy on the disposal of Government-owned facilities. The company will probably purchase or lease some of the Government-owned equipment. It would be particularly interested in working out a leasing arrangement such that the rental fee would be determined by the number of hours the equipment was used. It was stated that since the equipment would not be fully utilized at first, Curtiss-Wright would be unable to pay a full rental fee.

A similar but more elaborate plan is proposed for the disposition of plant space. Under present arrangements, the company has 90 days in which to exercise its option for the purchase of the facilities and another 90 days in which the company can meet the highest bid. It is believed unlikely that the company would be interested in buying all of the facilities within that period of time. The company is interested, however, in obtaining Government permission to organize a subsidiary company which would assume the functions of disposing of the present plant space. This new company would establish a Manufacturing Mart and rent space and services to 80 or 90 independent manufacturing companies on a fee basis. The largest tenant of this new company would be Curtiss-Wright, which would occupy about half the space. Other companies would be offered light, heat, power, engineering service, accounting service, legal service, and even medical service. These companies would, therefore, need little capital to start operations. It was suggested that Curtiss-Wright might negotiate a lease with D.P.C. the rental fee being a percentage of receipts. At the time of the interview, the first copy of this plan had just been submitted to the officers of the corporation.

The suggestion has already been discussed with various Government agencies, however. It was reported that the D.P.C. is favorably disposed towards the plan because, if it is successful, Government realization on the facilities might ultimately be greater than the proceeds from an outright sale.

Substantial gains have been made in output per man-hour during the war period, but most of the advance is attributable to the fact that large quantities have been produced. Some technical developments will be applicable to civilian production, however, even if there is a change in the types of products manufactured. Of particular importance will be the strides made in welding techniques. At the research laboratory, welding instruments have been perfected so that 1800 spot welds can be made without changing the points, while previously only 30 were possible. Methods developed for putting together large shapes have eliminated a large amount of riveting. The research laboratory also has done work on the uses of new materials, e.g., laminated and impregnated wood.

EMPLOYMENT PROBLEMS.

Employment at the Curtiss-Wright plant in Buffalo during 1944 has been about 42,000, and in May women comprised 41 percent of the work force. In 1939, only 2,500 were employed. Post-war employment on aircraft production will probably not account for more than 10 percent of the present total. If the company undertook the manufacture of streamlined cars, employment on retooling work during the 6-month reconversion period would probably be about 1,000. As full production was reached, employment devoted to this product might rise to a maximum of 8,000-10,000.

About 10,000 former employees of the company are serving in the armed forces. Replies to a questionnaire sent to 2,000 of these servicemen indicate that one-third would probably be interested in re-employment. Already, 400-500 veterans have returned. Experience has shown that careful placement, training, and follow-up are essential, for many of the returned veterans find readjustment difficult.

No extensive retraining problem for present employees is anticipated. These workers are experienced in aircraft production, and the manufacture of passenger trains would require far less precision work than does the manufacture of planes.

Thus far, morale in the plant has not been greatly affected by speculation on post-war security. The news from the invasion front and the knowledge of the importance of the plant's production have helped to maintain morale. It is expected, however, that if the European war progresses successfully many women will leave their jobs, since patriotism has been an important factor keeping them at work. It was also reported that there is a definite tendency among members of the engineering and executive staff to be concerned with the question of their post-war security.

Lay-offs of workers will be governed by seniority provisions in the plant's agreements with the International Association of Machinists, A.F. of L., which covers the factory workers, and with the United Office and Professional Workers of America, C.I.O., which represents the plant's clerical staff.

SUGGESTIONS FOR GOVERNMENT ACTION.

The major suggestions for Government action have already been mentioned--provision for rental of facilities to a subsidiary company on the basis of a percentage of the company's receipts from its tenants and provision for rental of equipment on the basis of the number of hours of use. The company recommends that there be no wholesale dumping of Government-owned facilities. It is recognized that it is also undesirable to permit monopoly of Government-owned equipment.

It was suggested that certain standard raw materials which become surplus, such as rivets, bolts, sheet aluminum, and the like, be earmarked for post-war use. Such an arrangement would greatly facilitate the resumption of operations for civilian production. Inquiries have already been made of the Army authorities in charge of disposal of surplus materials and it is believed such an arrangement will be possible. If this procedure cannot be followed, the company would like to have the materials removed from the plant as quickly as possible.

BISON SHIPBUILDING COMPANY
Tonawanda Island
Tonawanda, N. Y.

WAR PRODUCTION.

The Bison Shipbuilding Company was organized March 14, 1942, by the officers of Ernst Iron Works, Inc. and A. E. Feine and Sons, Inc., Buffalo, N. Y., structural steel fabricators and operators of a hot-rolled steel warehouse. The shipbuilding company was formed to build landing craft and similar boats for the Navy with plans to continue operations after the war.

Current production of the shipyard consists entirely of landing craft and similar small ships. Operations are apparently closely integrated with the two parent companies, and all must be considered together. In addition to fabricating work for the shipyard, the two parent companies carry on some industrial work amounting to about 5 percent of total business. Production schedules are currently set at yard capacity, 20 ships of 180 tons each per month. During a previous program, this yard built 301 ships of a given type out of a Nation-wide total of 955. Dollar value of production for both the third and fourth quarters of 1944 amounts to $3,000,000 per quarter; but a sharp reduction is expected in 1945.

Since the yard is operating at capacity and recently received a contract for 36 additional craft, the management believes there is no need now to seek additional war contracts. However, expectations of eventual decreases in the landing craft program have impelled the company to seek information on the possibility of constructing oil tankers, and dry and bulk cargo vessels.

RECONVERSION PLANS.

No definite steps have been taken to plan peacetime production. Technical problems in reconversion are not anticipated, since the shops will finish war production 4 weeks ahead of the yard and can begin civilian production immediately. It is believed that shipbuilding activities will account for only 25 percent of post-war business, and will be limited to specialized types of ships--tugs or cargo--since the company does not anticipate a post-war demand for standard vessels.

Delay in the disposition of Government-owned equipment and materials would lengthen reconversion time. If war contracts were terminated suddenly, the company might be left with partially completed ships on the ways. Prompt disposition of this as well as $250,000 worth of Government-owned facilities would be necessary. In addition, the Government has a 3-year standby option on the yard and some agreement concerning this would also be necessary before peacetime production could commence.

The company reports that a decrease of 50 percent in war work would be necessary in order for resumption of civilian production to be profitable. However, the company would begin civilian production following a smaller cut in war orders.

When lay-offs become necessary, departmental seniority will govern the selection of those terminated. The company has union contracts with the Iron Workers, the International Brotherhood of Boilermakers, Iron Shipbuilders and Helpers of America and other A.F. of L. craft unions.

SUGGESTIONS FOR GOVERNMENT AID.

The company recommended rapid disposition of Government-owned equipment and material, including partially completed ships, after the termination of contracts.

From a long-term point of view, the management believes that Federal development and improvement of the New York State Barge Canal is desirable. Widening and deepening the West end of this waterway would attract new industry and improve transportation from the Great Lakes to the sea coast. The competition with railroad transportation would be negligible, in the management's opinion, inasmuch as the railroads carry other bulk freight and would receive increased business from the new industries attracted by the canal.

POST-WAR PRODUCTION PROSPECTS.

Plant facilities include a yard, the land area of which has doubled in the last two years, together with a number of new buildings which will permit all work to be done inside heated areas. The land and buildings, together with new buildings being planned, will be sufficient for post-war needs.

Production immediately after the war will probably decrease to 50 percent of the present level; this volume will then represent 300 percent of the pre-war levels of the fabricating facilities. The shipbuilding activity is expected to drop from its present proportion (about 95 percent) to 25 percent of total activity of the company. Production will be limited largely to specialized barges, lighters and light tugs.

Only 10 percent of the materials necessary for commencing production on civilian items are available at the present time. Release of these materials, of course, will depend on the War Production Board.

In the opinion of the management, costs of production will increase immediately after the war, but after one or 2 years, may fall to pre-war levels or below. It is believed that material costs and labor costs will both follow this trend.

Efficiency on some jobs has been as much as tripled by technological developments during the wartime period. The developments themselves are not unique, and consist primarily of increased "know-how," use of electricity, and piping. In addition, substitution of welding for rivets and bolts has decreased costs. No estimate on total savings, either in man-hours or dollars, was available.

This company subcontracts work to 10 or 15 firms directly and to approximately 100 through U. S. Navy Procurement. All work on mechanical equipment and about 10 percent of that on the hull is subcontracted. It is believed that subcontractors will be used to about the same extent after the war.

POST-WAR EMPLOYMENT PROSPECTS.

Employment--including the two parent companies--was 1,500 in June, having decreased through normal turnover from a wartime high of 1,600. The shipyard alone employed 657 in June, according to reports to the U. S. Employment Service. With the termination of war contracts, a 50 percent reduction in labor force is expected over a 60-day period. The management believes that many of the men released will look for jobs in their regular occupations as workers in the construction and service trades.

The composition of the work force is not expected to change considerably. Only 10 women are employed in production and 50 in the office at present; after the war there will probably be no women in production. Plant officials state that they would like to rehire as many veterans as possible, but indications are that many will not want their old jobs.

Training will apparently constitute no problem after the war. After retooling, men with the same skills can be used. The major training problem was a war problem; the company established training classes for welders in March 1942 to overcome the severe shortage. Some 2,000 certified welders were trained in this manner.

AMERICAN SHIPBUILDING AND DRYDOCK COMPANY
Buffalo, N. Y.

WAR PRODUCTION.

Normally this company has two yards engaged in repair work for ships operating on the Great Lakes. A shipbuilding program was undertaken in 1942 and was completed by the summer of 1943. One yard constructed eight tugboats and the other rebuilt two aircraft carriers. A third yard was acquired when the Navy turned over to American Shipbuilding the completion of five tugboats and four barges on which work was begun by another company.

There were no war contracts at the time of the interview, nor did the local management know of any plans for new Government contracts. All arrangements for contracts, however, are made at the home office in Cleveland, Ohio.

RECONVERSION PLANS.

The company cannot plan for resumption of peacetime work. It is engaged primarily in repair work, and activity depends on the arrival of ships needing repairs. Business usually is seasonal, higher in the winter and lower in the summer, since ships postpone minor repairs in order to take advantage of the summer lake trade. The low volume of business at the time of the interview was partly due to the seasonal lull, although activity was lower than the normal pre-war level.

This yard will have no need for additional facilities after the war. The Navy built the office building and owns some material which is being removed.

POST-WAR PRODUCTION AND EMPLOYMENT PROSPECTS.

The company expects to return gradually to its pre-war level of business. Employment at the two yards during the winter season before the war averaged 300. Employment at all 3 yards at the peak of the shipbuilding program in May 1943 was nearly 1,300; by June 1944, only 86 workers were employed.

There are no women production employees at present and none will be employed after the war. Even the prospects for the employment of veterans are very uncertain, inasmuch as the seasonal nature of the work makes advance planning of employment difficult. If veterans return, however, and jobs are available, the company indicated they would be given preference.

The management believes that production costs will decrease from present levels after the war, because of declines in costs of materials.

Subcontracting plays but a minor role in the company's business. Before the war there were no subcontractors and there will probably be none after the war. Even during the height of the shipbuilding program, subcontracting did not exceed 5 percent of the total volume of work.

There have been no wartime technological developments which will have peacetime applications. The yard has been doing more welding than normally, primarily on Government ships. Although the tugs built by this company have been satisfactory, the opinion was expressed that a new welding technique is needed, inasmuch as some of the larger welded ships have not held

up under adverse conditions. On lake ships the amount of welding is small, however, and constitutes no particular problem.

CUTBACK EXPERIENCE.

This yard has returned to a 40-hour week from the 48-hour work week in effect during the shipbuilding program. At that time the company operated 6 or 7 days per week, and 1 yard operated 3 shifts. As the program was completed, however, hours were reduced. Lay-offs were made as each stage of production was completed in accordance with the terms of a multiple contract with various A.F. of L. unions. About 100 men were transferred to similar jobs at the same rates of pay in a yard operated by the company in Ohio. The other workers were given certificates of availability and referred to the U.S.E.S.

Some men were hired at the beginning of the program through the U.S.E.S. but the majority came through various A.F. of L. unions and by referral from other workmen. When it becomes necessary to hire additional workers, this method will be used again, and the company anticipates little difficulty in recruiting workers. Records are kept of all employees and efforts will be made to recall workers formerly employed here.

RICHARDSON BOAT COMPANY, INC.
North Tonawanda, N. Y.

WAR PRODUCTION.

This company is building landing craft (LCVP) for the Navy and 40-foot motor launches for the Army. Before the war, the yard built pleasure boats and small power cruisers, and it will return to this type of production after the war.

Commitments on the Army program extend to September 1944, and on the Navy program to November 1944. The war shipbuilding activity of the company will not end at those dates, however, for the Navy has indicated informally that further construction is needed and the Army has asked the yard to qualify for bids on a new contract. At present, 15 percent of the workers are assigned to the Army program and 85 percent to the building of landing craft for the Navy.

The combined Army-Navy production schedule provides for the construction of 50 units per month through August 1944 and 55 units per month until November. Production after November 1944 was uncertain at the time of the interview.

RECONVERSION PLANS.

Company designers are proceeding on developmental work for post-war power cruisers similar to the yard's pre-war line of pleasure craft. Dealers have already been contacted and preliminary marketing plans discussed. While no boats have yet been built, experimental construction of the pleasure craft is expected to begin soon. Material clearance has been obtained and the yard has on hand some pre-war material that can be used.

Technical aspects of reconversion present no difficulties. There will be no period of lay-off for redesign in this yard. The management stated that if materials were available the company could proceed within 15 days with production of civilian items. The cost of reconversion is estimated at $25,000 and is not considered a serious problem. Shortages of materials could delay resumption of production, however. The items most critical at present are wood (plywood and lumber), fastenings (including bolts and nuts), shafting, motors, and such boat accessories as toilets, bilge pumps, galley equipment, fittings, and cleats. If these items are available immediately after the war, civilian production can be resumed immediately.

While the time necessary for reconversion presents no difficulties, war production will have to be reduced substantially before production of civilian items is undertaken. Management believes that war production will have to be reduced 25 percent before production of the new items begins. A 50 percent decline in war work would be necessary to make peacetime production profitable, but the yard would start production with a 25 percent decrease in order to get into the market early and build good-will.

POST-WAR PRODUCTION.

When post-war markets develop fully, the yard expects production to be 100 percent above 1940 levels. This large increase is expected because the management believes there is a tremendous backlog of demand for pleasure boats.

If 1940 wage rates and material prices prevail after the war, costs are expected to be much the same as before the war. Wages are expected to remain high, and the management favors a high wage policy.

Technological developments have not been outstanding. There has been an increase in labor efficiency due largely to war enthusiasm, and efficiency of the foremen has increased. In addition, a few modern tools have been purchased.

Subcontracting has increased during the war. In normal times from 5 to 10 percent of the work is subcontracted but the proportion has risen to 20 or 30 percent. The work subcontracted is of a type that could be done in the yard. The same subcontractors will be used after the war that are employed now.

EMPLOYMENT PROBLEMS.

If the expected 100 percent increase in production over the 1940 level is achieved, employment will likewise rise to twice the 1940 total. In 1940, the yard employed 75 men. Employment increased during the war to a maximum of over 200 and in June 1944 was 180. Thus employment is not expected to decrease substantially from present levels after the war, and no lay-off is anticipated.

The management has had no great difficulty in obtaining workers during the last year and a half. The high wages and the use of older workers with some experience in shop work, either as a hobby or as a business, has made recruitment easier. The only change expected in the post-war work force is the voluntary withdrawal of about 25 older men whose places will be filled by an equal number of returning war veterans. Only one woman is currently employed in the yard.

This company, although small, is making advance plans not only to regain peacetime markets but to minimize seasonality of employment. Plans have been made to stimulate Southern sales during the winter months when employment and production usually decline, and, in addition, to increase the stock of boats on hand during the winter. These plans have been discussed with the union, Local 308 of the United Electrical, Radio, and Machine Workers of America, C.I.O., and they have apparently received enthusiastic support. The company states that the union is usually consulted on major changes in plans and that labor relations are excellent.

If lay-offs were necessary, the union would be consulted and terminations made in accordance with the seniority list incorporated in the union contract. Seniority is based on company-wide length of service and governs rehiring as well as lay-offs. Two weeks' notice is given whenever possible to workers laid off for more than 3 days.

The wage policies of this company are also of interest. The management states that high wages are a policy and, as noted, steps have been taken to assure year-round employment. In addition, workers now work a 50-hour week, and receive a bonus based on a yard-wide incentive system. Bonus pay varies from month to month according to the total number of units produced in the yard. In May 1944 this bonus equaled 18 percent of base pay and in June, 25 percent. After the war the company plans to operate on a 48-hour week so that weekly earnings will remain high.

SUGGESTIONS FOR GOVERNMENT ACTION.

One of the principal problems the yard expects to face after termination of war contracts is that of disposition of Government-owned material. A sudden cutback would leave the yard with boats in process of construction and a great deal of material including motors, compasses, and accessories. The company would like to have a clear statement concerning this problem and believes the notice of termination should give the management authority to clear the yard of surplus material without delay.

HARRISON RADIATOR DIVISION
General Motors Corporation
Lockport, N. Y.

WAR PRODUCTION.

This plant manufactures heat transfer units for ships, aircraft, tanks, trucks, and scout cars. Most of the work is done on subcontract for companies producing for the Navy and the Army Air Corps. Civilian production—automotive radiators and car heaters—is now limited to essential service and represents about 6 percent of total output. In peacetime about 85 percent of all work was for the automotive industry and 15 percent for other uses. At present, less than 10 percent of all work is subcontracted.

This plant has operated at capacity throughout the war period. The company reported that it had firm contract commitments for the next 7 or 8 months which would maintain production at capacity level...It is expected that production may continue at the same rate for the duration. The plant manufactures a wide variety of products and the proportions of different types and models change constantly.

RECONVERSION PLANS.

Management officials see no prospects for an early increase in civilian production, since their commercial work depends entirely on the needs of the automotive industry. It is now generally expected that the first post-war cars will be 1942 models, hence the automobile items produced will be very much the same as those made before the war. No specific work has been done on design of post-war products and no entirely new products will be made, although new models will, of course, eventually be developed. The plant's sales force was designated the war contract section during the war period and will be available, therefore, for the marketing of civilian products.

Reconversion for civilian production will require some retooling. Moreover, foundry operations will have to be changed from aluminum to grey-iron work, and new assembly lines established. Although full reconversion would take a considerable length of time, company officials are confident that the time required would be less than that needed by the automobile manufacturers whom they supply. Partial reconversion could be handled more easily. If war production were reduced 10 or 15 percent, production for civilian use could be increased by a corresponding amount with little difficulty. The plant could use the manpower made available to establish 3-shift operation on the commercial assembly line which has already been set up. A reduction in war output of 25 to 40 percent could probably be handled in 90-120 days. If the decline in war production were larger, 8 or 9 months might be required to convert fully to civilian production. Company officials anticipate that reconversion will be a gradual rather than an abrupt process.

POST-WAR PRODUCTION.

Plant space may be expanded after the war, but plans for such expansion are not yet fully developed. Similarly, new equipment may be purchased, although plans here also are still general and have not yet received official approval. Some of the equipment would be for replacement and some would represent expansion. Essentially, there will be no important innovations in the types of equipment. There may be some use of induction heating processes.

The plant has some Government-owned equipment for extruded tube work, which would not be required for normal operations. There are also Government-owned machine-tools which the plant would be interested in buying if the terms were suitable. If this equipment is not purchased from the Government, new machine tools will be acquired to replace them.

While no definite estimate was available on the probable level of post-war production and employment, management officials envision the possibility that the rate of operations will not be decreased from present levels and may even be increased. It is expected that the production of automobiles will be at an unprecedented volume for several years following the war. Production costs will be higher than in the pre-war period, but the size of the probable increase is not known.

The plant officials work constantly to develop better production methods and work arrangements, but there has been no great acceleration of this process during the war period. Improvements in efficiency have been made in brazing and welding, however, and, in these operations, output per man-hour may be higher after the war than in the pre-war period.

EMPLOYMENT PROBLEMS.

This plant employed about 3,600 workers before the war (2,900 in 1939) and about 5,700 in May 1944. As has already been noted, it is possible that employment will not decline in the post-war period. Some decrease may occur during reconversion, however. There might be a substantial curtailment of employment—perhaps 30 to 50 percent—for a very few weeks. Labor requirements at this plant vary fairly closely with production. While about 30 percent of total plant employment is designated "non-productive," part of this indirect labor does vary with output.

In May 1944, nearly 40 percent of all employees were women, compared with about 15 percent before the war. Experience with the employment of women has been relatively satisfactory, and the company would not be particularly anxious to replace the women employees with men. However, 1,400 of the plant's former employees are now serving in the armed forces and it is expected that virtually all of these men will be interested in re-employment. The company has confined its hiring to nearby areas, and it is the most important source of employment in the community. Most of the women employed have very little seniority. During the reconversion period, there may be fewer jobs for women than when the plant is in full production, but the difference will not be significant.

Management officials anticipate a great deal of difficulty in re-employing veterans if the present interpretation of Selective Service regulations is not changed. It was recommended that veterans be given accumulated seniority rights for their period of service in the armed forces, but that they receive no other special preference. It was stated that the position of the local union of the C.I.O.United Auto Workers of America is in accord with that of the company. The company does plan to make every effort to provide employment for veterans when they return.

Some Negroes are employed at the plant, although there were none before the war, and no problem of any kind has arisen.

Under the terms of the company's union agreement, working hours may be reduced to 32 per week before any lay-offs are made, but such a procedure is not obligatory. Lay-offs are to be made in accordance with seniority in non-interchangeable occupational groups and men and women

are listed in separate job groups. If the work force were reduced, transfers would be made within departments and, possibly, from one department to another. Such transfers would not create any serious difficulties, however, for they are customary in the plant and many of the workers employed can already perform various jobs. Training would be done on the job, but if a large amount of retraining were necessary, management would establish a special training line. The union agreement provides that 24 hours' advance notice of lay-offs be given where possible.

Management believes there has been a definitely increased tendency, within the last few months, for workers to be concerned with the question of post-war security. This plant has been able to retain its employees more easily because the plant produces for a stable industry and has a favorable post-war outlook.

CHEVROLET MOTOR AND AXLE DIVISION
General Motors Corporation
Tonawanda, N. Y.

General Information on Cutbacks.

This plant is a branch of the parent company at Detroit, Michigan, and normally produces carburetors, fan belts, bodies, parts, and accessories for motor vehicles and trailers. The plant converted its facilities to the manufacture of 14-cylinder aircraft engines after the production of automobiles was discontinued. Peak employment under this program was reached in November 1943, when 7,377 workers, including 2,468 women, were on the pay roll. By May 1944, however, the work force had decreased by about 1,000 due to quits and military separations.

A number of cutbacks became effective in May 1944. The plant had received several months' advance notice that production of 14-cylinder engines was to be reduced and replaced by a new 18-cylinder engine. Retooling for production of the new engine necessitated a lay-off. Terminations of 1,200 women began April 29, 1944, and continued over a 10-day period as the women finished work on the parts they were making. Employment at the time of the interview in June had reached its minimum and was estimated at 4,800. Rehiring of the women laid off will begin in July and total employment may reach 6,500 by the end of 1944.

The effect of the cutback on the various subcontractors is not known. The same subcontractors used in producing the 14-cylinder engine are being employed for work on the 18-cylinder engine wherever possible.

Employment Adjustments.

Reduction of the labor force necessitated by the cutbacks was made primarily by laying off 1,200 women. The plant is not allowed to hire male workers under the rules of the War Manpower Commission Employment Stabilization Plan. Consequently, the company decided to lay off the women temporarily, for it was believed that there might be some difficulty in recalling any men released. Since the lay-offs were temporary, the U.S. Employment Service had no one at the plant to direct workers into new jobs.

There is disagreement as to the method of handling the lay-offs. The management stated that the terminations were strictly in accord with the union agreement, which provides for separate seniority lists for men and women, and that the union was consulted in advance. However, the sub-regional office of the United Auto Workers of America, C.I.O., claimed that the company violated the seniority agreement in laying off only women. The local has been instructed to arbitrate the dispute, but at the time of the interview, nothing had been done in this regard. There are indications that the local may not be as interested in retaining women as the national and regional offices of the union.

Both company and union agree that there was some drop in morale as a result of the cutbacks. The management stated, however, that the employees and union knew well in advance that the cuts were coming, and that the situation was thoroughly discussed with the union. Furthermore, the plant management reported that many women welcomed the temporary lay-off as a means of catching up on shopping and home duties.

Transfers and demotions played a minor part in the employment adjustments. The management reported there were few demotions and that most transfers were made on a loan basis to the engineering department. Transferees will be placed in their old or similar positions when production of the 18-cylinder engine is well under way. No new skills will be required on the new work and no training problem is anticipated. At present, on-the-job training is the only program in use and it has met the needs of the company.

RECALL EXPERIENCE.

The company plans to rehire all the women laid off. Notification will be by means of letters and recalls will be made largely in the month of July, with a gradual increase of the work force to 6,500 by the end of 1944, as stated above. Interviews with some women who were laid off revealed that most wish to return and that few have sought other employment.

SPECIAL LABOR GROUPS.

Men and women have separate seniority status, under the provisions of the master contract between the union and the General Motors Corporation. At the peak of employment, 30 percent of the workers of this plant were women, although before the war no women were employed except in the office. The company does not consider women workers satisfactory, primarily because they become fatigued easily. For this reason the management does not plan to employ women in production after the war.

Employment prospects for veterans appear somewhat better. The company intends to keep in touch with former workers in the armed services and will attempt to give special consideration to veterans who worked for any branch of the Chevrolet Company.

The plant maintains no figures on the number of Negroes employed but it is estimated that over 1,000 were on the pay roll at the peak of production. These workers entered the work force under the same conditions as other workers, and the management reports that no problems whatsoever have arisen.

RECONVERSION PLANS.

It is estimated that over-all planning, engineering, and re-tooling will take from 4 to 9 months. For the most part, the skills which will be needed will be the same, and it is believed that little retraining will be required.

CHEVROLET MOTOR AVIATION
Engine Plant No. 2
Buffalo, N. Y.

GENERAL INFORMATION ON CUTBACKS.

In peacetime, this was an automobile assembly plant, but the facilities were sold to the Government at the beginning of the war and converted to the production of Pratt and Whitney aircraft motors. A change from a 14- to and 18-cylinder engine necessitated a temporary reduction in employment of about 2,000 during March, April, May, and June. Notice of the scheduled changeover was received sufficiently far in advance to permit planning for a gradual reduction in staff and to allow normal turnover to reduce the number of lay-offs. The reduction in employment had been completed at the time of the interview late in June. The company expected to begin recalling workers in August and planned to expand employment to its former level in about 1 month.

In order to retool for the changeover to the 18-cylinder engine, it was necessary to install new types of machine tools and other equipment and to re-arrange virtually the entire plant. Retooling started in March and was scheduled for completion in July. At the time of the interview, about 75 percent of the work force was engaged in production of the former engine and 25 percent in retooling for the new engine. The skill requirements for employees working on the new engine will be very much the same as those for the old, and no significant re-training will be necessary.

EMPLOYMENT ADJUSTMENTS.

About 10 percent of the employment reduction of 2,000 represents quits, and the remainder temporary lay-offs. Practically all the workers laid off were women. The plant's agreement with the United Auto Workers of America, C.I.O., provides for seniority status within non-interchangeable occupational groups and specifies that men and women shall be listed in separate job groups. As was noted in the report for the Chevrolet Motor and Axle Division regional officials of the union stated that the selection of women for lay-off was in violation of the seniority agreement. The management representative at this plant reported that the plant had not been permitted to hire men for about a year and that the women generally had less seniority than the male employees. In any event, an important element in management's decision apparently was the fact that the men would be less likely than the women to return to the plant in the event of a temporary lay-off.

It was reported that 90 percent of those laid off stated that they would want to return when the company resumed full operations and that only 25 percent of those laid off were interested in obtaining other employment. The majority of the women were reported to be willing to take a "vacation" to catch up on housekeeping and similar duties. Workers who were interested in other employment were given releases at the plant and referred to the U.S. Employment Service. The plant notified the U.S.E.S. of the changeover and cooperation between management and the U.S.E.S. was reported to be very good.

Numerous transfers were made as a result of the changeover. Changes in wage rates were generally small, and some of the transfers involved increases in pay rather than decreases. A number of the workers who had been promoted temporarily to supervisory positions are now working on

their former jobs, and the proportion of supervisors to total employees has declined somewhat.

While the union was not called in to discuss this particular production change, the union and management have weekly meetings and are in close contact with each other. The union was notified informally of the scheduled lay-off and publicized it among the employees. Workers who were laid off were notified at least 24 hours in advance. Management reported that the changeover had no great effect on morale and efficiency within the plant. The number of grievances had not increased and labor relations generally were fairly satisfactory.

No provision had been made for keeping in touch with the workers released, but it was believed that most of the women would return. Since the plant pays high wages, this expectation is probably justified.

SPECIAL LABOR GROUPS.

A fairly large number of Negroes have been employed in this plant during the war, but no exact figures are available. Some Negro women were among those affected by the temporary lay-off. None of the several hundred physically handicapped employees were affected by the lay-offs. It is anticipated that there will be no difficulty in utilizing these workers on the new product. About 150 veterans are now employed by the plant, 24 of whom are former plant employees. No difficulties in employing these workers' have arisen and none are anticipated.

RECONVERSION PLANS.

The contracts now in force will run for the duration of the war. The decision as to whether the plant will be re-purchased from the Government after the war will be made by the central offices of General Motors, but the management here believes the plant will probably be closed when war production is completed.

If the plant is operated by General Motors after the war, reconversion would take about 6 weeks, and all war production would have to be terminated before civilian production could be undertaken. Employment, which was about 6,000 during the early months of 1944, would probably be about 500 during the reconversion period and no greated than 1,500 thereafter. In 1939, the plant employed about 1,200 workers. Women now comprise about half of the work force, but only a small number were employed in peacetime. The proportion would doubtless be small after the war, because auto assembly operations would not permit as extensive utilization of women as does the plant's present work. The skills developed for war work would not be carried over to any great extent to peacetime production.

HOUDE ENGINEERING DIVISION
Houdaille Hershey Company
Buffalo, N. Y.

WAR PRODUCTION.

The Houde Engineering Division manufactures aircraft parts and shock absorbers for aircraft and military vehicles. The company has hundreds of small contracts; some are with Army Ordnance and Army Air Forces, but the majority are subcontracts with aircraft manufacturers. Previously, plant production was scheduled by Wright Field, but this control is no longer exercised. In peacetime, the plant manufactured automobile parts.

Commitments on war contracts run into 1945 at reduced levels. No definite statement on the expected reduction was available from the management, but the union stated that it believed employment would be reduced from 3,500 to about 2,000 within the next 6 months. At the time of the interview, 376 workers had already been laid off (during May and June) as a consequence of the reduction in production schedules. One difficulty in obtaining additional work claimed by the regional office of the union was an unfavorable cost situation at the plant. The company has a Sales and Service Department which is trying to get new contracts, but there are no definite expectations on new work at this time.

RECONVERSION PLANS.

Since conversion to civilian production must await the resumption of automobile production, post-war plans are not yet crystallized. The parent company, Houdaille Hershey, has committees on new products and experimental laboratories, but there are as yet no specific production plans.

Reconversion will necessitate a thorough modification of the plant. It will be necessary to convert present equipment to peacetime use and to purchase some additional new equipment. The tools used before the war are still in use, but changes will have to be made and new jigs and fixtures designed. The preparation for the resumption of production of some civilian items will require about 4 months, but complete reconversion will take longer.

Some civilian products could be produced immediately with only a small reduction in war output or without any reduction at all. Some types of shock absorbers, which represent about 8 percent of normal peacetime output, have been produced during the war period.

POST-WAR PRODUCTION.

No expansion of plant space is contemplated for civilian production. New equipment will be needed, but no definite plans for its acquisition have yet been made. It is anticipated that there will be no serious problem in obtaining forgings, the chief material.

The management was unwilling to hazard a guess on the probable level of post-war production. Production costs, it was stated, will depend largely on wage scales and on the controls exercised to prevent inflation. One factor which was declared to have increased production costs during the war has been the necessity to increase the office force to comply with various governmental reporting regulations. Post-war production costs will also depend largely on the quality of the labor force. The performance of the present labor force was reported to be about 97 percent of the standard established by engineering consultants.

The management stated that there have been no technical developments which will be of consequence in the post-war period and that wartime equipment was not as well built and not as efficient as that available in peacetime. A union representative, however, reported that in his opinion efficiency had increased enormously.

EMPLOYMENT PROBLEMS.

Before the war, the company employed about 2,000 workers; by May 1944 the total had increased to 3,800. Employment after the war will be below the wartime peak, but no more specific estimate could be made. Management stated that conversion to war production was accomplished gradually without laying off any employees. It was believed that a similar smooth transition could be made to civilian production.

About 40 percent of the employees are women, and it is expected that the proportion will decline after the war, largely because of the return of veterans. Another factor which will tend to reduce the proportion of women is the requirement of equal pay. Negroes comprise 2 or 3 percent of the plant's force and, in general, have little seniority.

SUGGESTIONS FOR GOVERNMENT ACTION.

Establishment of uniform policy for contract termination by all Government agencies was considered extremely important. It was recommended that all procedures be clearly defined so that companies would know what to do with raw materials, what information was required for contract settlement, etc. The management suggested rapid action by the Government in settling terminated contracts and in disposing of Government-owned equipment and materials.

CUTBACK EXPERIENCE.

This company has had cutbacks in a number of contracts. Some new work which was received alleviated the situation but not sufficiently to eliminate the necessity for lay-offs. The number of workers dismissed during the 6-week period May 6-June 17 was 376. Notice of the cutback came to the plant, in most cases, in the form of a telegram ordering the cessation of "all work." The U.S.E.S. was notified of the cutbacks by the plant and gave good cooperation in placing the workers laid off. Dismissed workers were given releases at the plant and then referred to the U.S.E.S.

When reduction in operations became necessary, the management proposed to the union, the United Auto Workers of America, C.I.O.,that hours be reduced from 48 to 40. The union rejected this proposal, however, since jobs are still readily available in the Buffalo area. Lay-offs were made on the basis of plant-wide seniority, in accordance with the union agreement. Workers were given the opportunity to transfer to lower-paid jobs, generally from machine operations to maintenance work, but in most cases they elected to take the lay-off. Thus, only 30 workers were transferred as a result of the cutback.

The union was notified of the cutback 48 hours in advance and had access to the plant's seniority lists. Workers to be dismissed, however, were informed only at the beginning of the shift. There were no disputes over the manner in which lay-offs and transfers were made. The management stated that efficiency had increased and that absenteeism had dropped from 10 or 12 percent to 3 percent. The union representative had no grievances over the method in which the cutback was handled and stated that the company

had gone beyond the requirements of the contract in giving notice and maintaining wage rates. Nevertheless, he reported that plant morale and efficiency were low, for there was not enough work for those employed, and the workers generally expected further reductions in force.

Some retooling will be necessary for the new work which will be undertaken, and some retraining on the job will be required. Neither problem is expected to be serious.

About two-thirds of those dismissed were women. It was believed that many were taking a "vacation," but that the majority would eventually want new jobs. About 30 workers were estimated to have left the area, most of them to return to farms.

TRICO PRODUCTS COMPANY
Buffalo, N. Y.

WAR PRODUCTION.

This company is devoting half of its plant capacity to goods similar to those made before the war, and half to new war products. The distribution of production at the time of the interview was as follows:

	PERCENT
Windshield wipers, civilian transportation. . .	25
Windshield wipers, war transportation	25
War products.	50

War products are primarily gun and ammunition components including 40 mm. magazine bodies, firing pins, 20 mm. projectiles and 40 mm. tracers.

The manufacture of firing pins is decreasing, but production of the 40 mm. mark 11 tracers is being expanded. The manufacture of such war items as 1.1 projectiles, AP shot projectiles, and .30 and .50 caliber bullet cores, formerly produced here, was terminated by cutbacks between September 1943 and June 1944. Dollar value of current production, both military and civilian, is $900,000 per month, having decreased in recent months from a monthly rate of over $1,000,000 in 1943. The volume of production is expected to decrease gradually in the future unless increased production of civilian items is permitted.

The company has made no attempt to obtain additional war contracts but will continue the manufacture of war products as long as necessary. The indications are, however, that the plant would prefer to convert to civilian work as soon as war needs make the change possible.

RECONVERSION PLANS.

There are as yet no plans to increase production of civilian items. Facilities are sufficient, however, to supply enough windshield wipers for an automobile output of 5,000,000 cars per year. The company has the same priority rating for the production of windshield wipers as for war goods, and consequently expects no difficulties to arise when it becomes possible to increase output of this item. Future production plans are dependent entirely on the automobile industry, however, and this fact limits advance planning.

The management asserts that the plant can convert almost over night and can deliver civilian items in substantial quantities in less than 3 months. If the automobile industry produces 1942-model cars, no retooling will be necessary, and it is on this basis that the company is making plans. Retooling was a significant problem in this plant when it converted to war items, however; it took 6 months to begin production of the tracers. The usual time requirement for retooling on war items is from 2 to 4 months. Such an interval will not be necessary when an increase in production of windshield wipers is permitted, as retooling has already been partially accomplished.

An authorization to increase civilian production in any amount would be acceptable to the company. If automobiles were produced at 50 percent of pre-war rates, the plant could drop all war production and not lay off any workers. Even if war production were not curtailed, this plant has equipment sufficient to increase production of civilian items if manpower were available.

POST-WAR PRODUCTION.

The level of production depends entirely on the automobile industry. The management stated that the prospects are favorable for a higher volume of production and employment than the plant has at present. In addition, the company has developed a new product, an automobile window-raiser operated by a push-button. It is not expected that the automobile industry will adopt this device during the first year of post-war production, but after the second year, it is probable that additional facilities and manpower will be required. The extent of expansion due to the new product cannot be predicted, however, since it depends on how many automobile companies use the item.

Higher costs of production are anticipated after the war. Labor costs are expected to be 50 percent higher than in the pre-war period, wage rates having doubled since the war began. Material costs are also expected to be above pre-war levels. Unit costs of production may not rise to the same extent as total costs if a large volume of production can be maintained.

Improved techniques of production learned during the war and use of new materials will promote increased efficiency of operations after the war. The plant has had to operate to closer tolerances than ever before and has gained considerable experience in the fabrication of new metals, particularly magnesium, and in the use of plastics.

In addition, the war training program has helped the company to utilize its labor force more effectively. The plant has two instructors who conduct courses for screw machine operators, inspectors, and cost accountants. Workers are paid while in class and are given new jobs after completion of the 3 months' course. This training program will probably not be emphasized as much during peacetime but it will be continued as long as necessary and will be used to train returning veterans.

This company will not use subcontractors after the war; at present it subcontracts only a negligible amount of its work. The plant is essentially a subcontractor for such companies as Bell Aircraft, Curtiss-Wright, and Colonial Radio, and is a prime contractor on its munitions items.

EMPLOYMENT PROBLEMS.

Reconversion to civilian production can be accomplished without layoffs, if materials are released and if the increase in automobile manufacture coincides with the termination of war contracts. Peak employment during the war period was 2,200. In June 1944 the company employed 1,941, of which 754 were men and 1,187, women. If the war ends in 1945, employment is expected to increase to 3,000. Pre-war employment was seasonal, varying from 1,200 to 3,300.

Women were employed extensively in this plant before the war; they have been found better than men for work on small assemblies. Normally the proportion of women workers increases with expansion of production. After the war the percentage of women workers will probably decrease from the present 61 percent, but it is expected that women will constitute at least 50 percent of the total.

Veterans will be rehired and trained for better jobs. Efforts will be made to give veterans jobs for which they are qualified, not merely the jobs which they left, since the management believes some morale problems may arise if an attempt is made to place men with good Army experience in menial tasks.

In other respects, the composition of the work force is not expected to change significantly. The present ratio of skilled to semi-skilled workers is 60:40 and will not change materially; skilled tool- and die-makers, machine operators, and inspectors will be needed in about the same proportion after the war. The plant hired approximately 30 or 40 Negro women before the war, and these workers will be retained.

Many employees have been with the company for several years, and have considerable seniority. Moreover, the War Labor Board has recently approved an increase in step-up wages, allowing an advancement each 2 months, instead of each 6 months. These factors account for the low employment turn-over, in the management's opinion, and the lack of a tendency on the part of workers to seek nonwar employment.

SUGGESTIONS FOR GOVERNMENT ACTION.

This company recommends that Government-owned equipment be removed from the plant as rapidly as possible after the war. The Army has removed its idle facilities, but the Navy has not yet removed about $100,000 worth of equipment, including six screw machines of a type too large for peacetime use. Removal of this equipment would free space for plant use.

Other suggestions include prompt settlement of contracts and elimination of manpower controls. This plant has had no difficulty in obtaining all the workers it needs. Unlike establishments in the heavy industries, this company believes that it could obtain all the workers it might require even in the present tight labor market.

The management expressed some interest in modification of present practices concerning renegotiation of contracts. It was stated that while profit might well be entirely eliminated from war products, a fair profit should be allowed on the company's own product now sold to the Government, and that renegotiation should not be applied to these items.

GENERAL INFORMATION ON CUTBACKS.

The Trico Products Company has had several cutbacks, the earliest occurring in September 1943 and the latest in June 1944. The contracts for 1.1 projectiles, AP shot projectiles and .30 and .50 caliber bullet cores were canceled entirely; the latest cutback involved a 20 percent reduction of schedules for firing pins. In each case notice was sufficient, for example, 3 months for the 1.1 projectile, and the plant was able to complete production of items in process. The cutbacks necessitated about 2 to 4 months retooling. As production of one item decreased, however, schedules for other items increased, so that no lay-offs were necessary.

EMPLOYMENT ADJUSTMENTS.

Employment adjustments consisted essentially of transfers of workers from one type of screw machine to another. These transfers constituted no problem since the skills required on the two types of machines were the same. In fact, as the company returns to peacetime products, less training will be required inasmuch as war jobs are more specialized than jobs for civilian production.

The cutbacks necessitated no change in operating schedules; the plant is now on a 48-hour week. Three shifts are scheduled for war work; one for civilian production. After the war, the plant will schedule one shift of 40 hours per week, since this arrangement is considered most efficient and requires least supervision.

Transfers and lay-offs are governed by departmental seniority lists maintained by the company, and operate almost automatically. This policy is incorporated in the union contract with the Trico Workers Association representing 90 percent of the workers, and the Metal Polishers and Platers, A.F. of L. Seniority is applied uniformly, with no discrimination between men and women or between other groups.

There are indications that the morale of the workers is lower than it was previously. The cutbacks themselves were apparently accomplished with little difficulty, except for a few complaints from several workers who were transferred to jobs at lower wage rates. The major difficulty centers about the question of union recognition. In 1942, the independent union won a National Labor Relations Board election over the U.A.W.-C.I.O. The management stated that rivalry between the two unions continues, however, and that the U.A.W. wants another election. In addition, the International Association of Machinists, A.F. of L., is seeking recognition. The company expressed satisfaction with the operation of the present labor-management committee, which handles bond drives, films, canteens and the absenteeism program.

In normal times employment is highly seasonal. Lay-offs come in July and August and rehiring begins in time for production of windshield wipers for the new automobiles. The plant attempts to rehire those workers laid off during the seasonal lulls. Management states that workers take jobs for the summer on boats or in summer resorts and return to the plant in the fall. During the war period, there have been no seasonal fluctuations in employment, and the company has had no wartime experience in recalling workers.

FEDDERS MANUFACTURING COMPANY
Buffalo, N. Y.

NATURE OF PRODUCT.

Before the war this plant manufactured refrigeration parts; automobile radiators, industrial heating equipment, and similar products. The company plans to return to this field after the war. In addition, plans for the manufacture of air conditioning equipment were completed before the war but production was postponed for the duration.

The opening of the war in Europe brought a contract from the British Government for the manufacture of .30 caliber machine gun belt-links. Development of this link was a joint endeaver of the company and the Rock Island Arsenal. Late in 1942, after the British had released the rights to the product, the company received a contract from the United States Government to produce this item. Manufacture of the .30 caliber link was discontinued in February 1943, however, and contracts for .50 caliber links substituted. New equipment was furnished by the Federal Government and the program was expanded. Later, however, schedules were reduced from 3,000,000 per month to 2,000,000.

Production of the .50 caliber links was discontinued entirely in February 1944, since the item had not been expended as rapidly as had been anticipated. Elimination of all production of belt-links resulted in a 70 percent decrease in the monthly volume of shipments. Details of the effect of the cutbacks are presented in a later section of this report.

Following the cutback of belt-links the company was able to apply its pre-war experience in the manufacture of heat transfer units to the manufacture of cooling systems for bomber engines, and this plant now supplies two-thirds of the units used at Willow Run. In addition, the company now produces cooling systems for engines made by the Packard Motor Company, and electric drinking water coolers for the Navy. The plant was able to enter these new fields because the specialized manufacturing equipment released by the previous cutbacks could be used for this work, and because the plant possessed sufficient "know-how."

Production of cooling systems for Liberator bombers made by Ford began in October 1943 and first shipments (in December 1943) totaled 500. Current production of this item (June 1944) is 1,200 per month. Electric drinking-water coolers are delivered to the Navy at a rate of 200 per month. Commitments on most present contracts run through 1944, but some extend into 1945; it is expected that some additional subcontracts will come from new sources.

RECONVERSION PLANS.

Some steps have been taken to plan the production of civilian items. The company completed design work for the manufacture of air-conditioning equipment before the war and intends to produce this equipment after the war. Plans are also being made for the manufacture of wind tunnels for calibrating and rating heat transfer equipment. The company stated, however, that it could not use its engineering staff for detailed development of post-war products, inasmuch as the engineers are developing new power plant equipment for the "Superfortress" bomber.

The length of time this plant will require for resumption of peacetime production depends on the item to be manufactured. Some pre-war products can be produced within 60 days, automobile radiators will probably require about 12 months, and entirely new items may not be produced until 2 years after the war.

The resumption of civilian production depends primarily on two factors: removal of Government-owned machines to provide necessary floor space, and release of critical materials. The management believed that the Army had been unduly slow in removing some surplus machines but it hoped to reach a settlement by September. Release of components--motors, instruments, and controls--depends on the war program; delivery of fractional horsepower motors to the plant is promised at the rate of only 52 per week, due to the demands of the aircraft program. Civilian production will of necessity have to await settlement of these problems. Once the floor space is cleared, however, civilian items can be produced profitably even without any reduction in war output.

POST-WAR PRODUCTION.

No new plant space or equipment will be required for post-war production. Reconversion is expected to be very costly and the plant apparently will attempt to postpone purchase of new equipment wherever possible. For 2 years after the war, the company plans to produce only pre-war items; after that, new products will be manufactured.

The items normally manufactured are of such variety that it is difficult to estimate the level of post-war production. The backlog of demand is expected to maintain production for 2 or 3 years after the war. It was stated, however, that the company would consider itself fortunate if, after demand is saturated, post-war production equals that of pre-war years. Similarly, because of undetermined factors and the variety of products, the plant is unable to estimate post-war costs of production.

There are indications that productive efficiency has increased during the war period. This plant was able to reduce the price on a contract for the Ford "Liberator" bomber-cooling system, having reached in 6 months the same cost level attained by other companies only after 3 years. Savings in costs have been accomplished by a decline in labor requirements, especially maintenance labor, and by installation of safety devices on the presses. Considerable savings in material have resulted from the use of automatic stops, devices which halt presses automatically when material is misfed and save dies from spoilage. An incentive plan, in effect for all work except ordnance, has increased labor productivity. The methods learned and the new equipment installed will facilitate post-war production.

This plant uses no subcontractors except as suppliers of material and will not use subcontractors after the war.

EMPLOYMENT PROBLEMS.

Employment in June 1944 was approximately 625 but the management hoped to increase employment to 1,000 by September. Employment at the time of the interview in June was lower than normal pre-war employment and lower than at any previous time during the war period. Before the cutback of .50 caliber belt-links, 875 workers were on the pay roll.

During the first 2 or 3 years after reconversion to peacetime production, employment is expected to be 25 percent above pre-war levels, but the volume of post-war employment will depend in part on the length of the workweek.. The plant now works an 8¾-hour day 5 days per week and a half day on Saturday, but the management plans to return to the 40-hour week after the war. The level of employment during the conversion period will be determined primarily by the time necessary to obtain critical materials.

Women now constitute 45 percent of total employment, and in some departments where physical strength is not required, 80 percent of the workers are women. The company would prefer to employ women to the extent of 25 percent of the total work force and the management stated that this proportion will be retained if the union agrees.

SUGGESTIONS FOR GOVERNMENT ACTION.

The only suggestion made involved removal of Government-owned equipment from the plant as soon as possible, after it is no longer useful to the war effort.

GENERAL INFORMATION ON CUTBACKS.

As indicated above, the principal cutback came in February 1944, when work on .50 caliber belt-links was terminated. Production decreased by 70 percent, but an increase in production of clips for the Garand rifle and a new contract for cooling systems for the Ford "Liberator" bomber mitigated the effect on employment. There was a net reduction in force of approximately 300 workers. Normal turnover and military withdrawals were sufficiently high, however, so that only 50 women were laid off.

Notice of the cutback was apparently adequate, and the management expressed appreciation for the help given by Army Ordnance. The company was told to discontinue production over a 2-month period--an arrangement that gave the company time to plan transfers and avoid excessive lay-offs. Employees released were referred to the U. S. Employment Service but most of them had already found new jobs and merely obtained clearance through the U.S.E.S.

The knowledge of the impending cutback had very little adverse effect on morale, in the opinion of the company. The union was kept informed of all plans, and the workers knew that work on the new contract would be forthcoming. There were some disputes between the management and the union over the question of whether strict seniority or ability should determine transfers, but in general the adjustment was accomplished without much difficulty.

EMPLOYMENT ADJUSTMENTS.

Transfers constituted the principal means of adjusting employment after the cutback. Approximately 400 workers were shifted to new jobs, at the same grades as the ones they left. These transfers created a training problem of some importance, since the job changes involved working with aluminum instead of steel. On-the-job training of 3 to 5 months was necessary before the transferees were fully qualified for the new work. Although this method of training resulted in an increase in spoilage, the management stated that there was insufficient time for formal training.

Transfers and lay-offs are governed by seniority, but at the time of the cutback there was some dispute between the union and the company on the application of seniority provisions. Temporary lay-offs are made on a departmental basis, but if lay-offs are to exceed 15 days, workers must be transferred to other parts of the plant if they are capable of performing the new duties.

The cutbacks left the ratio of women to men substantially unchanged. Women are employed in the laboratory and in production, but not in the maintenance department.

RECALL EXPERIENCE.

The company has had very little success in recalling workers laid off, since they obtain other jobs with no difficulty and do not wish to return.

BETHLEHEM STEEL COMPANY
Lackawanna, N. Y.

NATURE OF PRODUCT.

This plant, a branch of the parent company at Bethlehem, Pa., is producing steel for the war program at full capacity. The product is essentially the same as that manufactured before the war and no major post-war changes are anticipated. Current production schedules are established at 275,000 tons of steel ingots per month through 1944 and for an indefinite period thereafter.

RECONVERSION PLANS.

Production for civilian needs could be resumed immediately. The change from war to peace production will involve little more than a change in customers. No retooling problems will arise and there will be no shutdown during the reconversion period. Any cutback in war demand whatsoever can, therefore, be utilized to produce for civilian markets.

POST-WAR PRODUCTION.

Plant space and facilities are adequate for resumption of peacetime activity. The management hopes to add a new bar mill after the war, however. No other new machinery is needed except for normal replacement. Apparently, technological developments during the war have not been significant. The plant will use the same methods of production after the war that were used before.

EMPLOYMENT PROBLEMS.

Employment has not changed significantly since 1939; in May 1944, 11,220 workers were employed. When orders from the automobile industry declined, employees in the strip mill were rapidly absorbed in other parts of the plant. A union representative stated that the change from manufacture of structural steel to steel for ships had also resulted in numerous transfers.

The shortage of labor is greater in steel and other heavy industries than in plants where the work is lighter and wage rates higher. This plant has had to use men through two shifts, especially on open hearth work, in order to meet production needs. The regional office of the union expressed the view that the excessive overtime worked at the steel mills plus the heavy work and relatively low hourly wage rates (compared to aircraft and shipbuilding) has rendered recruitment efforts almost impossible.

The plant made no estimate of post-war employment, since the volume of production is uncertain. It is probable, however, that employment will at least equal the 1940 total. Thus, the number of workers employed is likely to remain close to present levels. The composition of the labor force will change after the termination of the war, however. The number of women has increased greatly since 1940; in May 1944 women comprised 6 percent of the work force. After the war, fewer women will be employed than at present. The company expressed satisfaction with the work of the women, who are used throughout the plant on all jobs except those requiring strenuous effort, but it is believed that the disagreeable nature of the work will cause many to quit. Moreover, returning veterans will displace both women and men who have little seniority. The Bethlehem

Steel plant has 4,300 employees in the armed forces and approximately 300 veterans have already returned. Although the work is heavy, the management intends to re-employ all veterans, including those who are disabled.

Lay-offs are governed by plant-wide seniority in accordance with the union contract with the United Steelworkers of America, C.I.C. Transfers and promotions are made on the basis of departmental seniority in some instances and plant-wide seniority in others.

BUFFALO ARMS CORPORATION
(Managed by Houdaille Hershey Company)
Cheektowago, N. Y.

WAR PRODUCTION.

This Defense Plant Corporation unit, managed by the Houdaille Hershey Company, manufactures machine guns and parts. All work at this plant is done under Army Ordnance contracts. Originally set up to make .30 caliber machine guns, the plant now manufactures .50 caliber guns. The changeover, completed in February 1944, required about 4 months for extensive rearrangement of equipment and complete retooling. A recent cutback in the .50 caliber machine gun program was imposed, for the most part, on other companies manufacturing the gun.

Under present commitments, this plant will operate at current levels for about 1 year. Production is scheduled for only 30 days at a time, however, and though most revisions in the program have been upward, there have been 50 different changes since operations were begun. It is considered probable that this plant will continue on war work longer than other plants producing similar items.

About 50 percent of this company's work is subcontracted to a total of 250 different firms. All of the subcontractors were in business before the war, and most expect to return to the production of their former lines.

RECONVERSION PLANS.

The Army Ordnance Department has first option on these facilities, and there has been some talk that the plant might be reserved by the Government as a permanent arsenal. Houdaille Hershey owns another plant in the Buffalo area (Houde Engineering, which produced motor vehicle accessories and parts before the war) and might be interested in operating the plant for the production of consumer goods after the war. The probability that the company will be able to secure these facilities is somewhat dubious, however. Plans of the company for their other plants might be extended to include these facilities, but no specific work on the selection and development of post-war products has been done.

About 90 percent of the equipment now in this plant consists of standard metal-working machines. Although no stamping or forging machines are included, many civilian products could be produced in the plant without making major changes in the equipment. At least 6 months would probably be necessary for the conversion, although the time might be longer for some products.

Technological developments during the war have resulted in greatly improved methods of metal working. Very few of these improvements are new inventions, however, and perhaps the greatest advantage gained during the war will turn out to be the experience obtained by the working force.

The problem of ownership of these facilities would make it very unlikely that civilian and war production could occur simultaneously. The plant will probably be devoted exclusively to the production of items for the Ordnance Department until the tapering off of war requirements brings the plant's activities to a final end.

EMPLOYMENT PROBLEMS.

Total employment at this company during 1944 has varied only slightly from the May 1 figure of 3,260. Nearly half of those employed are women. Some Negroes are in the work force. Handicapped workers, including about 6 blind persons, account for a small percentage of total employment, and have the same seniority status as other workers.

Some veterans have already been placed in this plant. The company policy is to give preference to returning veterans on other jobs in the plant if the old jobs are no longer available. There have been no special problems in placing veterans, and though in a few cases dissatisfaction has developed, satisfactory adjustments have been made. Since some veterans have forgotten what factory work is like, or since conditions may have changed, it is expected that there will be some readjustment problems in the future.

At the time of the interview, this company worked two shifts of 10 hours per day. Men had a 6-day, 60-hour workweek, and women, a 5-day, 50-hour week. In the event production schedules are decreased, hours would be reduced to 48, or possibly 40, before any lay-offs were made. No lay-offs have yet been made at this plant for lack of work. Any lay-offs that become necessary in the future will be based on plant-wide seniority. Transfers, demotions, and callbacks are also based on seniority, though some leeway is allowed from strict seniority for the ability of workers to do available work.

During the change from the .30 caliber to the .50 caliber gun which took place a year ago, only a limited number of products continued in production. The plant temporarily went on a 3-shift basis, 8 hours per shift, so that 50 percent more people could be engaged in work on these products and temporary lay-offs avoided. The plant usually operates only two 10-hour shifts.

This company has had special training classes and demonstrations for employees, 80 percent of whom have participated in some program. No extensive retraining program would be necessary if transfers occurred, since on-the-job training would probably be sufficient.

An agreement with an independent union, United Victory Workers Association, expired in June. The C.I.O. has filed a petition for an election to determine bargaining status.

Some tendency has been noticed by the company for employees to seek civilian work in preference to war work, but this trend has been much more marked among the executive staff than in the shop.

SUGGESTIONS FOR GOVERNMENT ACTION.

Company officials believe that flat percentage cutbacks, applied evenly to all plants engaged on a program, work great injustice, and that the relative ability and willingness of the various plants within a program to accept cutbacks should be an important factor in selecting plants in which the cutbacks will be applied. Company officials also feel that the Government should dispose of contract settlements and Government-owned equipment as quickly as possible, and then allow companies to carry on with the least possible amount of control. The inadvisability of suddenly wiping out all Government control is conceded.

At this particular plant, settlements are now made on a weekly basis, and it is probable that any future contract cancelation could be completed within 60 days. To date, the company has received sufficient advance information on contract changes to give subcontractors adequate notice.

BUFFALO BOLT COMPANY
North Tonawanda, N. Y.

NATURE OF PRODUCT.

This plant manufactures nuts, bolts, and rivets, the same products that were made before the war. The company is primarily a subcontractor, with almost all of its output going into war products. About 20 percent of the plant's output is on direct contract with the Army and Navy. Subcontractors have never been used, and it is not planned to employ any after the war. Total sales for the third quarter of 1944 are scheduled at $2,450,000 and for the fourth quarter at $2,600,000. The plant has sufficient war work and is not attempting to obtain additional Army or Navy contracts.

This plant has had some cutbacks on orders for bolts. Notice of the reduction was very short, but the cutbacks constituted less than 2 percent of total production and were entirely offset by new orders. There were no lay-offs or transfers and there was no effect on plant operations.

RECONVERSION PLANS.

No technical developmental work is necessary in planning civilian production, since specifications will remain substantially unchanged, but some efforts to develop markets will be necessary. The company can deliver its product to peacetime customers without interrupting war production. Furthermore, any decrease in war orders could be balanced by an increase in output for civilian consumption.

This plant will have no need of additional facilities, space, or material after the war. Since the company has a steel rolling mill, which receives steel in billet form, there will be no unusable raw materials left over when war production is terminated.

POST-WAR PRODUCTION.

Production in the post-war period is expected to be 20 or 25 percent above the 1940 level. The management has no estimate of post-war production cost, but it believes that labor cost will remain high.

Technological developments during the war period have been few. The change from cut thread to rolled thread, not primarily a war development, has speeded production and has increased the strength of the threads. Another inovation which increases speed of production is the use of headers of larger diameter.

EMPLOYMENT PROBLEMS.

Employment varies fairly close with production, and it is estimated that the post-war labor force will be about 20 to 25 percent above pre-war levels. The all-time peak in total employment was reached in February 1943 when 1,586 workers were employed, compared with 1,125 in 1939. In May 1944 employment was 1,503. The percentage of women in the work force has risen considerably due to war necessity and in May 1944, 30 percent of all employees were women. Women have always handled jobs on the threading machines, nutters and tappers, and on soldering; during the war they have been hired also as operators on cranes, scales, and locomotives, and as guards. The company considers them good workers but prefers men for heavy work. Many of the approximately 450 women are married and the

management believes they are working only to help the war effort. Many women will be replaced by returning veterans.

This plant has 520 workers in the Armed forces. On entering the Armed services, workers with more than 3 months' company service are given 120 hours pay. About 30 veterans have returned to the plant; they have been placed at jobs similar in duty and pay to those they left. There are only a limited number of jobs which seriously handicapped men can fill, however, and veterans cannot be placed in jobs of higher grade than the ones they left unless they have sufficient seniority.

The composition of the work force is expected to change with respect to skills after the war. This change will come about because of the availability of men of higher skill and the displacement of women with veterans. The following table shows the number and distribution of workers by sex and skill level for April 1943, when a survey of skills was made:

	Total	Percent of total	Men	Percent of total	Women	Percent of total
Total.....	1,672	100.0	1,128	71.2	455	28.8
Skilled.....	763	48.4	648	41.1	115	7.3
Semi-skilled.....	387	24.5	193	12.2	194	12.3
Unskilled.....	428	27.1	282	17.9	146	9.2

There has been no tendency on the part of workers to leave the plant to seek other civilian work. The company has favorable prospects and many workers, including some women, have been with the plant for periods ranging from 5 to 55 years.

The plant is now on a 48-hour week and schedules 3 shifts where possible. The present work-load is such that additional workers would be added to the evening and night shifts if manpower were available. In the event of a cutback of considerable proportions, hours would be reduced before lay-offs were made.

According to the terms of the contract between the company and the United Electrical, Radio and Machine Workers of America, CIO departmental seniority determines lay-offs and promotions. Rehiring is also governed by seniority if the worker answers within 5 days the registered letter calling him back to work. Women and men have the same seniority rights and veterans accumulate seniority while in the Armed Services.

AMERICAN RADIATOR COMPANY
(Bond Plant)
Buffalo, N. Y.

NATURE OF PRODUCT.

This plant is making its usual peacetime product, low pressure cast-iron heating boilers. Most of the output is marketed through jobbers, although some large lots are shipped direct to the Quartermaster Corps of the Army. Production is scheduled at plant capacity, and current contracts run through the third quarter of 1944. Output for the fourth quarter will probably remain the same as for the third, but the management has no estimate of production for 1945. The volume of production is apparently rather steady, however.

RECONVERSION PLANS.

The central engineering department in Pittsburgh has completed development work for new products to be manufactured immediately after the war, but details were not available at this office. This plant will have no reconversion problems during the interval between the close of the war and full resumption of peacetime business. There will be no re-engineering and, it is believed, no shut-down or lay-off while peacetime markets are regained. There are plans for the expenditure of from $200,000 to $300,000 for purchase of foundry equipment and new tools and for construction of additions to the warehouses.

POST-WAR PRODUCTION.

Production is expected to reach 125 percent of the pre-war level after complete return to peacetime markets. Production costs are expected to be 40 to 50 percent above pre-war levels because of increases in the cost of materials and of labor. The management stated that there have been few or no technological changes affecting efficiency during the war period.

The plant does not use subcontractors and has no plans to employ them after the war.

EMPLOYMENT PROBLEMS.

Post-war employment will probably expand by 25 percent above the pre-war level. If the expected goal is achieved, employment will remain close to the May 1944 figure of 990. Employment in 1939 was 747.

The composition of the labor force will probably remain much the same as at present. Women constitute only 4 percent of the work force and only 10 or 15 are in production work. No great change is expected in the relative number of women workers after the war. Veterans will be re-employed according to provisions of law, retaining their seniority rights while in service.

If lay-offs became necessary, departmental seniority would determine the order of termination until an entire department was eliminated, after which plant-wide seniority would be the criterion. This policy is established in the contract with the United Steelworkers of America, C.I.O., exclusive bargaining agent for the production workers.

SUGGESTIONS FOR GOVERNMENT ACTION.

There has been comparatively little difficulty in obtaining materials during the war, Government priorities having assured an adequate supply. Relaxation of restrictions--particularly on the purchase of lumber--was urged.

PRATT AND LETCHWORTH COMPANY
Buffalo, N. Y.

NATURE OF PRODUCT.

Normally this plant is a railroad foundry, the manufacture of railroad cars accounting for 75 percent of total peacetime production. Another important peacetime item is the Minor draft gear—a freight car shock absorber—for which the W. H. Minor Railroad Supplies Company is the biggest customer.

War production is devoted to tanks and half-tracks. The management estimates that plant capacity would permit production of twice the present tonnage if manpower were available, but the plant is not taking additional long-term contracts because of the critical labor shortage. In addition to tanks and half-tracks, the plant has a new ordnance contract for the manufacture of steel castings for 8 mm guns. This contract runs from September 1944 to July 1945; the gun has been found to operate successfully and additional contracts may follow. A large proportion of total output, however, still consists of freight cars and railway accessories.

This plant has had a number of cutbacks since the beginning of 1943. In January 1943, the entire tank program was eliminated. Since that time, however, the plant has regained 60 percent of the previous production. In March 1944 the manufacture of half-tracks was almost entirely eliminated without notice from the prime contractor, who had himself not received notice. At the time of the interview, half-track production had been resumed, and constituted 20 percent of the total output.

RECONVERSION PLANS.

This company expects reconversion from war to civilian production to present no serious problem. The plant has some supplemental equipment that could be used for peacetime production as soon as it is needed. No great amount of retooling is involved and it is estimated that the plant can schedule the first deliveries within 3 months after a reduction in war orders. Actual peacetime demand will depend largely on conditions in the railroad industry, but it is expected that all present employees will be retained in the interim period between the close of war production and the full resumption of civilian output.

A gradual decline in war contracts, accompanied by a gradual increase in civilian demand, is preferred to a sudden cutback. From a technical standpoint, however, almost any percentage decrease in war production would permit the production of civilian items. In normal times the "break-even" point is 60 percent of plant capacity, but this point may be somewhat different at present due to the effects of changes in labor cost and of the price ceilings established by O.P.A. for the plant's peacetime products. A sudden cutback would leave the plant with large inventories of alloy scrap, molybdenum, and chrome but these materials would constitute no serious problem. Normally, inventories sufficient for 3 months are carried.

POST-WAR PRODUCTION.

There is no need for additional plant space or equipment in order to resume full civilian production. The management indicated, however, that since labor costs exceed 50 percent of the cost of steel castings, the company may wish to acquire some labor-saving devices. The plant is now

using Government-owned equipment valued at $645,000, which the company has an option to purchase after the war.

In June 1944 the plant estimated production of civilian-type items (including production for war uses) at 1,500 tons of product per month. If labor were plentiful and wage rates favorable the plant could now produce at the rate of 2,000 tons per month. After full conversion, the plant will be able to increase its output of peacetime items. Post-war production is expected to approximate 1940 levels.

The company will use no subcontractors after the war; it is itself primarily a subcontractor, selling much of its output to General Motors Corporation, which holds the prime contract for tanks.

Production costs are expected to be higher in the post-war period than in 1940. The cost of materials will not be appreciably greater, but labor costs are expected to remain high.

No substantial savings are expected as a result of technological changes. Efficiency in testing materials has increased, however, during the war, as a result of the use of Magnaflux, gamma ray and X-ray for detecting flaws in metal.

EMPLOYMENT PROBLEMS.

If production equals the 1940 volume, the plant will retain the present number of workers, although some women may be replaced by returning veterans. In June 1944, 913 workers were employed and 13 percent of the total were women. Present employment is insufficient to maintain the necessary volume of output and efficiency has decreased. Over 100 men have been requested from the U. S. Employment Service, but only one or 2 per week are referred to the plant.

The present distribution of skills in the work force will be unchanged by peacetime production demands and no special training problems are expected, except possibly in the case of veterans. The wartime training school may prove of aid in training reemployed veterans. This school was started in 1940 in an effort to combat the growing labor shortage. Vocational schools were persuaded to allow pupils to complete shop work in the company's pattern shop. Vocational school graduates or persons with 500 hours of Government-sponsored vocational courses were trained as pattern-makers and machinists. The courses were very successful; there are now 15 or 20 men in the shop who received this training. The continuation of the program after the war, however, depends largely on the availability of skilled pattern-makers and machinists.

The company expects most of the women production workers to quit or to be replaced by veterans after the war. Originally, women were employed in production only in the core room. With the increasing manpower shortage, however, it became necessary to "sell" the idea of employing women to the foremen. Jobs that women could handle were found and now they are employed throughout the plant. Despite these efforts, however, the management states that their experience with women workers has been unsatisfactory; the women are good workers but have a tendency to resign after earning a predetermined amount.

Thirty-eight percent of the employees are Negroes. Their work is satisfactory and they are accepted by both the workers and the union.

The personnel superintendent reported that the primary cause of quits is the desire of workers to return home. He estimated that 8 or 10 employees have left the company each week since January and stated that many Negroes gave as the reason for quitting their intention to return South. The district supervisor of the U.S.E.S. cast some doubts on the importance of this factor, however, since reports indicate that out-migration is not significant.

SUGGESTIONS FOR GOVERNMENT ACTION.

The management stated that the C.P.A. has established ceilings that are entirely too low to cover costs of their civilian output. The ceilings were applied on an industry-wide basis, and the comprehensive prices established by the industry were frozen. It was stated that the costs of civilian production were being subsidized by the profits made on fixed-price war items. The company suggests, therefore, that the ceiling prices of civilian items be increased.

GENERAL INFORMATION ON CUTBACKS.

There have been 2 cutbacks of war items, as noted above. In 1943 the tank program was eliminated and later it was restored to 60 percent of its former level. In March 1944, the half-track program was almost entirely eliminated without advance notice from the prime contractor. This item has also been restored, however, and now represents 20 percent of total production.

EMPLOYMENT ADJUSTMENTS.

The effect of the cutbacks on employment was negligible. One department laid off 5 or 6 workers as a result of the cutback of half-tracks, but otherwise employment was maintained. Lay-offs were made on the basis of seniority as provided in the contract with the United Electrical Radio, and Machine Workers, C.I.O., signed July 26, 1943. Previously, seniority policy was governed by a contract between the company and an independent union, the Federated Industrial Union. The plant has been operating on a 48-hour week of 3 shifts and the cutbacks did not necessitate any change in this arrangement.

COLUMBUS-MCKINNON CHAIN CORPORATION
Tonawanda, N. Y.

NATURE OF PRODUCT.

This company manufactures the same products made before the war: chains, hoists, and cranes. About 80 to 90 percent of the total output now serves a direct war purpose, however, and is used by steel mills, auto and truck manufacturers, and shipyards. Rough estimates indicate 60 percent of the total product is used in the manufacture of goods for the Army, Navy, and the Maritime Commission; 10 percent serves essential civilian uses.

Future deliveries depend mainly on orders received. In June 1944, there was a 2 months' backlog of orders for hoists amounting to $650,000, and a $2,000,000 backlog for chains, which, if evenly spread, would last 6 or 8 months. Some delivery schedules run to the first quarter of 1945.

The great demand for all items made in this plant makes it unnecessary for the company to seek war contracts. This plant accepts all orders that it can handle, and expects to continue participation in war production.

Thus far cutbacks have affected only items for which other orders had already been placed. Some contracts to supply chains for ordnance were reduced and a small Navy contract for hoists was terminated when production of the plane for which they were intended was discontinued. In addition, the truck program was cut back in the winter of 1943 without notice. These cutbacks were of such negligible character that the plant has very little exact information on them. No lay-offs were necessary and apparently no transfers took place.

RECONVERSION PLANS.

Since there is no substantial difference between war and civilian items produced by this company, reconversion will not be a problem, and capacity released by any curtailment of war demand can be used for civilian production. The management stated, however, that it is not possible to make advance marketing plans, for the level of production depends on the demands of heavy industry. If a period of business uncertainty follows the war, industry will not need the product of this plant. Although the company can produce in advance of orders to a limited extent, sustained production will depend principally on the rapid readjustment of heavy industry.

The end of the war may find the plant with excessive inventories, particularly in the chain division. In the hoist division, there may also be some surplus items, partly because of obsolescence but largely because of the great inventories carried for war production. The plant made no suggestions on possible remedies for this situation other than to request advance notice of cutbacks.

In addition, some equipment will need overhauling and rebuilding. This work will assure steady employment for the maintenance crew. Other workers will be retained during the transition if demand is sustained.

POST-WAR PRODUCTION.

Less plant space than is occupied at present will be needed after the war. A study is being made of post-war requirements for machinery, but the results of this survey are not yet available. Most of the new equipment will doubtless be replacements of present machines. Materials are expected to be available as they have been for the past 2 years.

The volume of production in the years following the war is unpredictable, depending on the needs of heavy industry; however, the company reports that in a normal pre-war year production was one-half present levels and that it is reasonable to assume that production will be somewhat higher than "normal" in a good post-war year.

The cost of production will probably be higher after the war than it was in peacetime. Labor costs have risen and will contribute toward higher total costs. If more efficient workers are available after the war, unit costs may be lower than at present, but they will remain above pre-war levels.

Few, if any, technological developments have originated during the war to increase efficiency of production. The plant is experimenting with the use of electronic devices for control of quality, automatic flaw detection, and process control, but nothing definite has been applied to date. Machine tools may be more efficient after the war, in the company's opinion, due to competition in the machine tool industry.

No subcontractors will be used after the war. Their use at present is limited to machine-shop work which the plant cannot handle because of the manpower shortage and overloaded facilities.

EMPLOYMENT PROBLEMS.

Employment in June 1944 was approximately 900. The number of workers after the war is expected to decline gradually to a stable level and the decrease will be accompanied by some downgrading. What this level will be cannot be accurately stated, since the demand for the company's product is uncertain. In normal pre-war years, the plant employed about 500 workers and this figure may also represent post-war employment. Changes in employment however, are not entirely proportional to changes in output; for instance, at 50 percent of 1940 production levels employment would equal 60 percent of the 1940 work force.

Women constituted 25 percent of the work force in June 1944. Very few women will be employed after the war. At present most of the employees in the chain department are women, and some women are also employed in the machine shop, in hoist assembly, and as elevator operators. There were about 20 "women's jobs" in the plant before the war and these jobs will be probably the only ones filled by women after the war. In general, the plant management states that all-round machinists are needed, and the company plans to replace women with men even if it is necessary to pay men higher wages. The heavy work and absence of repetitive operations are given as the principal reasons for this policy.

The percentage of skilled workers will be higher after the war than it is at present. The same general types of skills will be required, but the plant will attempt to retain the skilled men presently employed and will replace women with skilled male workers.

Veterans will be re-hired strictly according to law, the company indicates. Attempts will be made to place disabled veterans in suitable jobs, but the plant has many jobs requiring heavy work and would be somewhat limited in its ability to place veterans with severe disabilities.

Training should constitute no problem after the war. The plant started a war apprentice school but, after losing many of the trainees to the Army and to other plants, discontinued it. Now, group leaders give on-the-job training, and some of this job training plan will probably be continued after the war.

As war orders decline, lay-offs will become necessary. Lay-offs and rehiring will be made in accordance with a modified seniority system, on a departmental basis, with consideration being given to ability and to the economic operation of the plant. This criterion is included in the company's contract with the Chain Workers Union of Tonawanda, an independent union. Rehiring of former workers follows a procedure similar to that for lay-offs, workers retaining their seniority for two years. There are no variations in seniority; women receive the same rights in this respect as men.

Shift arrangements will probably be modified. The plant has had 3 shifts of 7½ hours and 8 hours for a 6-day week, but in peacetime 1 shift is usual except where continuous operations are necessary.

SUGGESTIONS FOR GOVERNMENT ACTION.

The company recommends prompt handling of termination claims, with a minimum of reporting. Of equal importance is the allocation of sufficient materials as war production decreases. The plant's priority rating will drop, but civilian demand is expected to increase and the plant will need steel rods, wire, and malleable iron castings. Advance notice of tapering off of war demands was also suggested. The small amount of D.P.C. equipment in the plant—electric formers and welders—will not create any difficulties, if it is not removed promptly.

AMERICAN BRASS COMPANY
Buffalo, N. Y.

War Production.

This company produces copper and copper-base alloys in various forms--strip, sheet, and tubing. Conversion to war production involved merely a shift in emphasis from lighter to heavier products, some of the war material running to 4/10 inch thickness, compared with 1/8 inch for normal peacetime items. Some of the plant operations are new. as, for instance, the manufacture of cartridge brass. Currently, materials for Army, Navy, and Lend-Lease comprise 80 to 85 percent of total production; the balance includes products for the Maritime Commission, transportation and utility companies, Army Medical Corps, warehouses, and redrawing companies. The plant production is on subcontract to other establishments.

Plant operations are under the Controlled Materials Plan. The plant receives tentative notice of total required production about 3 months in advance, and definite production schedules only 1 month in advance. Production varies from month to month depending on the character of demand, manpower, and the availability of castings. In no month, however, has demand been below the plant's capacity to produce, and it is expected that this situation will continue. Total production for June was scheduled for 12-13 million pounds. The company would prefer to manufacture civilian products, but believes that it has no choice at the present time.

Reconversion.

Resumption of civilian production will be largely a return to the manufacture of lighter products, which require a greater amount of skill as well as a greater amount of labor per pound of output than do the heavier products. The only new type of production which might be introduced is the manufacture of brass rod. This change would be an innovation only for the plant and not for the company, for this plant is the only branch of the American Brass Company which does not have a rod mill. Some improvement in the quality of the product is expected, including production to closer tolerances, and increases in the weight of coils of strip. Product engineering has been curtailed during the war. Although the sales force has been reduced since the shift to war production, there is a good nucleus available for the resumption of civilian marketing. Most of the salesmen are now doing expediting work and a number are on loan to the Government.

Reconversion should take no more than a few weeks, once Government-owned materials and equipment are moved out. Some D.P.C. equipment would have to be removed, and some equipment for the production of lighter products which has been stored would have to be installed. No serious reconversion problems are anticipated since, at any level of output, the plant could produce some materials for war use, some for civilian production.

Post-War Production.

The plant expects to buy some new equipment to replace the machinery which has been used constantly during the war. The resumption of civilian production would not await the purchase of this new equipment, however. It is expected that post-war output will be at the 1939 level and that, in general, the products will be the same as those made before the war.

Production costs will be higher than they were before the war and it was reported that prices may have to be raised from present levels. Prices have been frozen since early 1941 and the management states that it has been able to operate without loss only because of the tremendous volume produced. Hardly offsetting the increase in unit costs of post-war output arising from the reduction in volume will be the elimination of overtime. Moreover, premium payments for the late shifts will be reduced; the third shift will be eliminated in all departments except the furnaces and the second shift will be materially curtailed. The company recognizes that it will have to compete with producers of aluminum, magnesium, steel, and nickel and is alert to the necessity for bringing costs down as far as possible.

There have been no wartime technical improvements in the plant which will have any significant effect on post-war efficiency, but the plant hopes to introduce improvements eventually. Some of the features of a D.P.C. mill in the West which is operated by American Brass Company may be incorporated in this plant after the war. This mill was specially designed to do the type of work now required and is equipped with special-purpose machinery. The installation of such machinery is a questionable step, however, since demand is variable.

The company does only a very small amount of subcontracting, and that infrequently. Occasionally, when the plant is loaded up with work, materials are sent elsewhere for machining. No work was subcontracted before the war and there will probably be none subcontracted after the war.

EMPLOYMENT PROBLEMS.

It is expected that after the war, employment will return to the 1939 figure of 1,300-1,400, approximately half of the May 1944 total of 2,593. No extensive retraining will be necessary after conversion to peacetime production. In general, the lighter products require more highly skilled workers, but the plant has a sufficient number of employees with the necessary skills and these workers have the greatest seniority. There may, however, be some demotions.

Women were not employed in production work before the war and in 1939 comprised about 3 percent of total employment. In May 1944, they made up 14 percent of the total labor force. The management does not expect to retain the women employees after the war, even though it was stated that women can be employed effectively on the lighter products. One difficulty mentioned was the fact that women cannot be transferred from one type of work to another as easily as men. About 570 former employees of the plant are in the armed forces and the management plans to follow strictly the provisions of the Selective Service Act in reemploying these workers.

If reduction in staff proves necessary, lay-offs will be made on the basis of plant-wide seniority, in accordance with the terms of the agreement with the Mine, Mill, and Smelter Workers, C.I.O.

SUGGESTIONS FOR GOVERNMENT ACTION.

Speed of contract termination was considered the most important factor in reconversion. Thus far, most claims have been settled promptly, but one has been pending for 8 months. If all war production were terminated immediately, the company would have to file 1,800 different claims through prime contractors. It was suggested, therefore, that settlement be made on

a plant-wide basis rather than on individual contracts. The plant could thus balance its entire inventory against all outstanding contracts, regardless of claimant agency. Another important factor in facilitating reconversion will be speed in moving out Government-owned materials and equipment. These materials would have to be moved out before the plant could manufacture civilian products.

AMERICAN MAGNESIUM COMPANY
Buffalo, N. Y.

WAR PRODUCTION.

The American Magnesium Company is a subsidiary of the Aluminum Company of America, The Buffalo plant was at one time an aluminum foundry and was shut down between 1932 and 1940. Since 1940, it has been producing magnesium castings on subcontract for aircraft manufacturers.

Production now varies between 450,000 and 550,000 pounds per month and is valued at about $750,000 monthly. From present indications, output will probably continue at the same rate through the end of 1944, but schedules for 1945 will depend on the course of the war. Thus far, there has been no difficulty in getting sufficient business to maintain capacity operation. All arrangements for contracts are handled by the parent company, Alcoa.

RECONVERSION PLANS.

Since magnesium consumption was insignificant prior to the war, the prospects for post-war production at this plant are indefinite. Much research and developmental work on possible uses of magnesium has been done, however, at the central headquarters of the American Magnesium Company in Cleveland and by Alcoa. Most of the plans have been devoted to those fields where some work had been done in the pre-war period. A company representative stated that aircraft business would probably be insignificant when the war ends. The major markets for magnesium will be in textile machinery, railroad equipment, and automobiles. Much remains to be done in product engineering and sales work, however, before sizable markets will be available.

The length of time required for reconversion will depend on the availability of patterns for sand-foundry products. If designs and patterns were prepared while the plant was still engaged in war production, the change could be made overnight. It is expected, however, that there will be some delay in getting designs and patterns. The time needed for preparing designs varies for different products and ranges from several weeks to several months. If the war production were reduced by even a small amount, production for civilian use could be undertaken, provided there was a market and designs and patterns were available.

POST-WAR PRODUCTION.

No additional plant space or equipment will be acquired after the war, for magnesium-fabricating capacity will be greater than required for some time to come. The level of post-war production is very difficult to anticipate, but it is believed output of 150,000 pounds a month (present production is 450,000-550,000) would represent a maximum. Production costs will probably be about 25 percent lower than in 1940, because output per man-hour has increased greatly during the war period.

It was reported that output per man-hour now is twice as great as in 1940. Many improvements have been made in foundry technique, including the development of superior molding machines and improvements in mixtures of sand. A number of developments have been made to control the hazard of fire, always important in handling magnesium. In part, the gain in output per man-hour is attributable to the experience gained by the work force as production has proceeded. Work has also been done to cut down on the

amount of scrap and to improve the quality of the product by working to narrower tolerances. Further improvements are expected to have a greater influence on the quality of the product than on output per man-hour.

This plant does not now subcontract any of its work and will not subcontract work after the war.

EMPLOYMENT PROBLEMS.

Employment at this plant in May 1944 was 1,190. The management believes that at best, post-war employment will be 350-500. The work force will probably fall below this figure during the reconversion period, for no orders may be available for some time. If employment dropped to 10 percent of the present level, however, the plant could not be kept in operation. If production were 25 percent of the present level, the plant would need about one-third of its present personnel; for 50 percent of present production, it would require about 60 percent of its present work force.

Women now constitute 11 percent of total personnel, but no women will be employed in the plant after the war. The company has an agreement with District 50 of the United Mine Workers of America which specifies that women are employed only because of the war emergency. It is believed that few of the jobs in the plant are suitable for women in normal times. After the war, the women who will be employed in the office will account for 3 or 4 percent of total employment. Negroes now make up 25 to 30 percent of the labor force and the proportion will probably not change materially after the war. The company plans to reemploy veterans when they return; the workers hired for jobs formerly filled by employees now in the services are considered only as temporary employees. Workers accumulate seniority while they are in the Armed Forces.

SUGGESTIONS FOR GOVERNMENT ACTION.

It was suggested that adequate advance notice be given of contract cancelations. It was also recommended that, when cutbacks are necessary, if possible, they be made in plants which are able to convert to other production.

GENERAL INFORMATION ON CUTBACKS.

A cutback in production schedules for 2 types of castings resulted in a temporary lay-off of 25-30 women in April. All had been reemployed at the time of the interview late in June. These 2 castings accounted for about 15 percent of total employment. The schedule for each was 800 pieces a month; 1 casting was eliminated completely and the other reduced from 800 to 600 pieces per month.

The 60-day notice received by the company was sufficient to enable management to handle part of the necessary reduction in staff by normal turnover. Thus, quits accounted for about half of the employment adjustment necessitated by the cutback.

EMPLOYMENT ADJUSTMENTS.

The company asked the women who were to be laid off whether they would agree to take a 30-day leave of absence. In general, they were reported to be willing to take the leave and only 2 workers asked for certificates of availability. About 1-week's notice was given the employees laid off. The

plant kept in touch with the employees during the lay-off period and all those contacted came back. Average lay-off time was about 30 days.

Approximately 25 workers were transferred to other jobs as a result of the cutback. Some of the transfers were at lower wage rates, some at higher rates, some at the same rate. Where reductions in rates occurred the change was generally only 2 or 3 cents an hour, the maximum reduction being from 86 cents to 78 cents. About half of the workers approached for transfers to lower rates asked for releases. Where transfers were made, 2 or 3 days' retraining on-the-job was necessary. Releases were given at the plant and the U.S.E.S. was notified of the cutback.

Lay-offs were made on the basis of plant-wide seniority and transfers on the basis of departmental seniority, in accordance with the terms of the union agreement. While the agreement specifies that women are employed only for the duration, the seniority provisions apply to them as long as they are in the plant. The company thoroughly discussed the cutbacks with the union and the Labor-Management Committee. The cutbacks had no observable effect on morale or efficiency.

In accordance with the terms of the union contract, the work week would ordinarily be reduced from 6 days to 5 days before lay-offs were made. Then, workers with less than a year's service would be released and if further reductions were necessary, the work week would be reduced to 4 days before additional lay-offs were made.

COLONIAL RADIO CORPORATION
Buffalo, N. Y.

War Production.

In peacetime this company manufactured radio receivers for automobiles and homes, but for the duration of the war it is making transmitters and receivers for the Armed Forces--principally walkie-talkie sets for the Signal Corps. Commitments on items being produced extend through 1944. Production of a newly-contracted sub-assembly will begin in September 1944 and extend through December 1945, with peak production scheduled for February 1945. Even if the war ends before December 1945, production of this item is expected to continue. Output is scheduled at a rate of $3,500,000 per month for the third and fourth quarters of 1944. Production for the first quarter of 1944 averaged $5,287,000 per month.

In February 1944, the Signal Corps contract was cut back. At the time of the interview, the plant was retooling for production of the sub-assemblies mentioned above. Production of this item and of goods now being made will utilize the plant to capacity and no further war contracts are anticipated.

Reconversion Plans.

This plant has taken definite steps to plan production of civilian goods. A survey was made of 34 of 106 major suppliers of material for a selected group of pre-war items, to determine the probable level of post-war prices of materials. Plans for production of new items are also under way, but the first radio sets made will be 1941 models. After 3 months an interim set will be manufactured and after 6 months a new set. No steps have been taken to obtain clearance for civilian production, however.

The company estimates that production of civilian items can commence within 60 days after relaxation of controls and initial deliveries can be made within 90 days. Over-all time requirements for starting production of predesigned war products has averaged 6 months. For other war items, the time required has been considerably longer. For example, the contract for the sub-assemblies was signed in February 1943; samples were sent to the Government in October; between October 1943 and February 1944, flight tests were made and decisions reached on changes in specifications. Initial production is scheduled for September 1944 and shipments for December.

Simultaneous production of war and nonwar products would be difficult unless manpower controls were relaxed and the company were permitted to use engineers for development of civilian products without fear of losing them to the Armed Forces. The company states that it might not be able to meet competitive prices if it were necessary to pay premium overtime rates under a mandatory 48-hour week. Furthermore, a morale problem is likely to arise if some workers remain on war work and others are transferred to the manufacture of civilian products. The incentive wage system is well established and war workers have become efficient through long experience and training. Workers transferred to nonwar work on the other hand, would have to learn new operations and "take-home" pay would decrease, even if the 48-hour week were maintained. If nonwar workers were on a 40-hour week, the differential between war and nonwar "take-home" pay would be greater and morale would suffer more seriously. The management stated therefore, that civilian production could be resumed only if there were a 50 percent cutback in war production, although complete elimination of war work is preferred before manufacture of civilian products is undertaken.

POST-WAR PRODUCTION.

Production of items for civilian use can be resumed without additional facilities, but more space will be necessary. This company has no D.P.C. equipment and purchased for war production only those tools and machines which would serve a peacetime purpose. Work requiring other types of facilities was subcontracted.

Total output of the Colonial Radio Company during 1946 is expected to equal 240 percent of 1940 volume. This estimate, considered conservative by management, is based on the assumption that 4,000,000 automobiles will be produced in that year, and that factory installation of car radios will increase. In addition, a large mail-order house is expected to serve as a new outlet.

Results of the survey of suppliers of materials and parts indicate that prices will not be substantially above pre-war levels. Prices of materials are expected to be about 5 percent above 1940 levels, with the exception of some items (aluminum, for example) which may be below pre-war levels. Prices of parts will probably be 24 percent higher than in 1940. In addition, labor cost will be higher than in the pre-war period, base rates having risen 22 percent since 1940. The company expects to reduce overhead and expand the volume and variety of output so that the full impact of the rise in material and labor cost will not be felt, and the increase in selling prices of Colonial products will be less than proportional to the increase in direct costs.

War technology and production experience will contribute toward improved quality and tend to offset the increase in material and labor costs. The work force has become accustomed to producing to closer tolerances. While narrow tolerances will be unnecessary for peacetime products, the wartime experience has increased worker efficiency. The use of automatic equipment acquired during the war will also tend to decrease post-war costs. Furthermore, in the opinion of management, experience gained in the development of radar has been a great contribution to television, and has speeded up developments in this field by years.

The volume of work subcontracted to other companies will decrease after the war. This plant has used two definitions of a subcontractor. Originally, a subcontractor was defined as any plant performing work that could be done by the prime contractor if adequate facilities or manpower were available. The Army used a broader definition——any plant which adds labor to raw materials. The latter definition was adopted for a time but was discarded as too broad. On the basis of the original definition, then, the plant will use no subcontractors after the war; on the basis of the second definition, 80 percent of total production cost consists of purchased parts. Before the war, the company manufactured many components for its own use and it will probably revert to this practice. During the war, many former suppliers of parts became in effect subcontractors to the manufacturers. At present, this plant utilizes 41 major subcontractors (original definition) accounting for 46 percent of total production. This ratio is expected to decline to 35 percent in the fall of 1944 and to remain at that level or to decline still further during 1945.

EMPLOYMENT PROBLEMS.

Pre-war employment was approximately 1,700, of which total 50 percent were women. Employment in May 1944 was 2,025 (1,071 men and 954 women).

The percentage of women has decreased during recent months due to the lay-off of 400 women after the cutback in February 1944. During the war, employment of women has averaged 65 percent of the total labor force.

During the reconversion period, employment is expected to decrease to a minimum of approximately 700. Only workers in the clerical, design, toolroom, engineering, and maintenance departments will be retained during retooling. Production workers and supervisors will be added later as needed, until the labor force totals approximately 2,200 about 90 days after the release of critical materials.

The labor force after the war will be similar to the pre-war work force. About 50 percent of the employees will be women; the reduction from the present proportion is expected to occur because of the return of veterans and voluntary withdrawals of women. According to the union contract, women can be employed at "men's jobs" for the duration of the war, but after the war the consent of the union will be required. The union representative indicated that any reduction in the number of women would come about through normal processes, since most women have little seniority and some 450 veterans may wish to return to the plant.

The company is both anxious and able to reemploy veterans. The work is light so that disabled veterans can easily be placed and no medical examination is required. The union contract provides for veterans' re-employment rights and accumulation of seniority while in the service; in addition, the union desires to help rehabilitate any veterans who may need aid even to the extent of abrogating seniority arrangements where necessary.

The management has noticed an increasing tendency for workers to seek nonwar employment and has reported some workers to the War Manpower Commission. The number of such quits is small but it is increasing, particularly among men over 38 years of age, 4-F's, and others not likely to be drafted. Few production workers have tried to leave, but business and professional men from other industries have been trying to re-establish old contacts as the war news becomes more encouraging.

SUGGESTIONS FOR GOVERNMENT ACTION.

The plant management expressed satisfaction with the cooperation shown by the Signal Corps both as to notification of cutbacks and willingness to discuss future plans. It was suggested that an attempt be made by agencies of the Federal Government to give advance notice of changes in requirements or specifications. This information should be transmitted as soon as new plans are made in order to avoid causing sudden readjustments in the plants. It was also recommended that the method used in allowing partial resumption of flatiron production be applied to the radio industry. Under this plan, resumption of civilian production in other than critical labor areas is permitted, on a quota basis, if such production will not interfere with existing war contracts. This plant apparently wishes to enter the civilian market in order to meet the strong competition expected and believes that the Buffalo area should be re-classified from a Group I labor market area to some less critical category.

GENERAL INFORMATION ON CUTBACKS.

Before the African campaign, this plant manufactured radio sets of moderate frequency (SCR-274) for the airborne command. When the invasion of North Africa began, however, requirements were modified; demand for moderate frequency sets decreased, and the need for high frequency sets

(SCR-522) grew. The company requested and received permission to discontinue production of the moderate frequency sets and to concentrate on production of the high frequency item, selling the materials and components for the manufacture of SCR-274 to another company. In August 1943, the contract for moderate frequency sets was canceled. Apparently, little difficulty was occasioned by this cutback and the plant proceeded with production of high frequency radio sets.

In February 1944 this program was eliminated and all production on the item was discontinued. As a result 200 workers were transferred and 400 were laid off. The company was given 30 days' advance notice, however, and was able to taper off production gradually and effect personnel changes in an orderly manner. Subcontractors were notified immediately. The opinion was expressed that this cutback did not seriously affect the subcontractors inasmuch as their contracts with Colonial constituted only a small part of their total business. As production declined, 400 workers, 95 percent of whom were women, were laid off with the understanding that the lay-off was temporary and that they would be re-called after retooling for production of the sub-assemblies had been completed. The workers laid off were referred to the U. S. Employment Service for temporary placement in other plants, and an agreement was reached with the U.S.E.S. that the workers would be released from their interim jobs when re-called by Colonial. The results of this procedure are discussed more fully in the section dealing with re-call of workers.

The effect of the cutback on morale was negligible. At all times the company kept the union--United Electrical, Radio, and Machine Workers of America, C.I.O.--informed, and lay-off procedures were formulated jointly. When the imminence of lay-offs became evident, absenteeism decreased from 5 percent to 3 percent per week and turnover decreased by approximately two-thirds.

EMPLOYMENT ADJUSTMENT.

The third shift was eliminated as a result of the cutback but no other changes in work schedules were made. When production again increases, the plant will restore the third shift of 6½ hours. By June 1944 all adjustments had been made and 100 of those laid off had been re-called. Those remaining in lay-off status will be reemployed during the months of August through November, as retooling is completed and production begins.

Lay-offs and transfers were effected by strict departmental seniority, as provided in the union contract. The company maintains the seniority list and representatives of both the management and union expressed satisfaction with the manner in which the adjustments were administered. The union committee and management work closely together on all such matters. Workers retain their seniority rights for 1 year and are re-called in inverse order of lay-off. The only variation from the seniority rules appears to be the proposed union-management policy of rehabilitating veterans, even if the abrogation of seniority is necessary.

The notice of lay-offs given workers is considered adequate by both union and management. While only 24 hours' formal notice was given individual workers, the union was informed 1 month in advance and participated in settling individual problems.

Approximately 200 women workers were transferred to other jobs as a result of the cutback. These transferred workers required no retraining,

inasmuch as the skills needed for the new jobs were substantially the same as those for the old. Ordinarily, new production workers receive only 3 days' on-the-job instruction. Transfers were made at approximately the same job level and no demotions were necessary.

Much publicity and morale-raising activity accompanied the cutbacks. The foremen, supervisors and union shop stewards maintained personal contacts with the workers and no difficulties were encountered. There is a labor-management committee which did much to bolster morale. This committee was informed of all plans involving lay-offs, transfers, and modifications in production schedules; about 150 persons participate in the work of this group.

RECALL EXPERIENCE.

As previously mentioned, the lay-offs were made with the distinct understanding that they were to be temporary and that the employees would be re-called in order of seniority. One month after the lay-offs occurred, a letter was sent to each worker affected to determine the worker's interest in reemployment; 80 percent expressed a desire to return. Of the first 100 offered jobs, 85 accepted, 5 had other jobs they did not wish to leave, and 10 were "not interested." In June 1944 about 100 workers had been re-called, and by November the company will have re-called the remaining 300.

When the company attempted to re-call some of the workers, the plants at which they were temporarily employed complained to the W.M.C., according to information furnished by the union. The W.M.C. had not yet decided at the time of this interview whether to permit their return. The union representative expressed confidence that Colonial would win the decision, however, inasmuch as the W.M.C. regulations do not abrogate provisions of a union contract. The decision is of importance, since approximately 75 percent of the workers had taken other jobs and most of them had taken wage reductions.

NATIONAL CARBON COMPANY
Niagara Falls, N. Y.

NATURE OF PRODUCT.

The National Carbon Company has 3 plants in Niagara Falls: the National plant, the Republic plant, and the Acheson Graphite plant. This report refers to all 3 plants which will be treated as a unit.

The principal products of these plants are carbon and graphite electrodes and carbon specialties. The war brought about no change in the type of product manufactured and apparently there will be no change after the war. Practically 100 percent of the present output serves a direct war use, although the company has very few direct war contracts. In general, the thermic products are sold to the steel industry and the electrolytic products to the chemicals industry. The company supplies practically the same customers now as it did before the war, and in addition sells to the magnesium producers. A great part of the product of the Niagara Falls plants is sent to other National Carbon plants, since the company is highly integrated. Steps taken to obtain additional contracts are not known at the Niagara Falls office, since all contracts are let in New York.

RECONVERSION PLANS.

This company expects the transition from war to peace to have little effect on its operations. There is no Government-owned equipment, and governmental authority will not be needed for resumption of peacetime business, since customers and products will remain unchanged. Additional plant space or facilities are unnecessary, and, since no shortages have hindered production during the war, no post-war problems are anticipated in this regard. The war resulted in only a slight expansion of production, therefore no drastic decline is expected after the war. The company does not anticipate any lag between war demand and peace demand, nor any interim period of low activity.

POST-WAR PRODUCTION.

The management did not estimate the actual level of post-war production. It is expected, however, that output will be somewhat higher than in 1940, although the company does not believe that the present level will be maintained. Even if business were to sink to 1940 levels there would be no problem of idle equipment and no lay-offs. A reduction in the work week from the 48 hours currently worked to 40 hours should be more than sufficient to care for any expected production decline.

Production costs are expected to be somewhat greater after the war than in 1940. It is believed that labor costs will remain high. Actually, labor costs, exclusive of overtime payment, have risen only slightly since 1940. There were some increases in 1940-42 but wages were reported to have been high even before this period. Coal represents a large part of the cost of materials but no great change is expected in the price of this or other materials.

No important wartime technological changes will influence post-war operations. Much baked material is now hoisted by cranes but this procedure can hardly be regarded as a wartime innovation.

These plants use no subcontractors and will use none after the war.

EMPLOYMENT PROBLEMS.

Employment in the 3 Niagara Falls plants increased from 700 in 1940 to 1,000 in June 1944. As indicated above, there will be no reduction in work force after the war, unless the employees wish to remain on a 48-hour week; employment could be maintained by reduction of hours from 48 to 40 hours. The nature of the work requires continuous operations.

No changes in general organization of the labor force are anticipated. Job duties and the distribution of skills will remain the same as at present. There are many experienced men on the pay-roll and training will not constitute a problem. The management has found the W.M.C. Training Within Industry courses helpful in promoting general labor utilization. The J.I.T. and J.M.T. courses have been given to foremen for some time and the plant plans to introduce J.R.T. courses shortly. This training program will be continued after the war.

After the war, the company expects to lose its women workers, who represented nearly 20 percent of total employment in May 1944, since the work lacks interest and is heavy. In addition, many of the 400 veterans now serving in the armed forces will probably replace women. Negroes constitute about 10 percent of the labor force and little change in the relative numbers is expected after the war; some of the Negro workers have been with the company for as long as 20 years. The plant expects to place the 400 veterans now in the service with little difficulty. Most jobs require heavy manual work, however, and there are only a limited number of jobs that partially disabled persons can perform capably and safely.

If lay-offs are necessary, the order of termination will be determined by 3-plant seniority and rehiring will be administered similarly. Company policy is the basis for this procedure, since no union is recognized.

There has been some tendency for workers to seek less essential work. The management believes that the patriotic urge which brought some workers into the plants has subsided somewhat. The tendency to leave is not, however, significant.

NATIONAL BATTERY COMPANY
Depew, N. Y.

War Production.

Initiating war production at this company involved no major changes in plant, equipment, or product. Though some changes in models were made, the product, storage batteries, remained the same. Before the war, about 75 percent of the plant's production was for automobiles and 25 percent was for industrial use; at present, 80 percent of total output is taken by the Navy, and 20 percent is still used industrially by mines, railroads, and utilities.

The company has Navy contracts amounting to 14 million dollars which will run through the year 1945. Present rates of production, $900,000 per month, are not expected to change during this time. More contracts have been available to this company than it has been able to accept. The main problem has been securing adequate labor.

The main offices of this company are in St. Paul, and here all marketing plans are made and development work done.

Reconversion Plans.

The plant has no plans or expectations for immediate resumption of civilian production. It is believed that after the war the product will remain unchanged, and the plant will again depend largely upon orders from the automobile industry. Converting to civilian production would entail the rearrangement of equipment now in the plant and the addition of some new equipment. The reconversion would require about 4 months, but production will not be interrupted during this period. A 75 percent reduction of war work would make feasible the reconversion of the plant for civilian production.

Post-War Production.

No additional plant space will be needed for post-war production in this plant, but from $5,000 to $10,000 will be spent for new equipment. Some Government-owned equipment is now in the plant, and the company would be interested in buying this, if the price were satisfactory. Inventories of lead and acid, rubber separators, and hard rubber jars will have to be built up, but no problems are anticipated.

Post-war production is expected to be at the rate of a million and a half dollars per year. This is approximately the same as the 1939 rate of production. In 1940, this plant was already on war work and production was at the rate of four-and-one-half million dollars per year.

If materials costs and wage rates continue at present levels, post-war production costs will be approximately 25 percent higher than they were before the war. Labor is an important part of total costs at this plant, and wage rates are currently 40 percent higher than they were in 1940. The change in material cost is due largely to the higher cost of the synthetic rubbers which have been incorporated into the batteries.

The company representative stated that there have been wartime technological developments which will result in greater post-war efficiency, but no detailed information was available. None of the plant's work is subcontracted, and none will be after the war.

EMPLOYMENT PROBLEMS.

Although employment in this plant has been maintained at about 770 in 1944, turnover rates are quite high. The separation rate has consistently been over 10 percent per month, and a rate of 15 percent or more is not uncommon. Transportation difficulties arise because of the plant's location in a suburban area. The work is heavy and the hazards of poisoning and accidents are present. Total employment at this plant was about 300 in 1939. During the reconversion period, employment will probably be 200, but when full post-war production is under way employment is expected to be 375. At present, about 10 percent of the workers are skilled and this ratio will probably be maintained both during and after reconversion. No women were employed at this plant before the war, but at present about 35 percent of the employees are women. Lay-offs, based on seniority, will affect more woman than men, but it is estimated that women will represent about 20 percent of all employees during reconversion and 25 percent during post-war production. About 25 handicapped workers are employed under the same seniority provisions as those covering other workers. No Negroes were employed before the war; 10 percent of the work force is now non-white, and this percentage is expected to remain unchanged after the war.

When war operations at this plant are curtailed, hours will be reduced from the current 48 per week to 40 before any workers are laid off. If necessary, hours would be reduced to 32, but some lay-offs would be made before hours were reduced to this minimum. The union, United Auto Workers, C.I.O., would be called in when lay-offs became necessary. The union contract contains no provision on notice to workers of lay-offs but does specify that lay-offs, demotions, and promotions be based upon plant-wide seniority. Veterans accumulate seniority while in the armed forces, and though the company does not know the union's attitude toward granting absolute preference to veterans, it expects problems to develop when veterans return.

At present, many workers do only one job, but a more versatile staff would be desirable for post-war operations. Some retraining will be necessary in order to switch workers from job to job. Retraining, done on the job, would require about 30 days in most cases. Since men are required for some of the jobs, women cannot be moved from job to job as easily as men.

WORTHINGTON PUMP AND MACHINERY COMPANY
Buffalo, N. Y.

WAR PRODUCTION.

This company manufactures compressors, diesel engines, gasoline engines, and multiple V-belt drives. Most work is on direct contract with the Government services, but a small proportion of production is for petroleum refineries, machine-tool builders, and other high-priority industrial users. Essentially the same types of products were made in peacetime--engines for power development, compressors for refineries and refrigeration, and V-belt drives for use on machine tools. The principal change in wartime has been that orders have been received for larger quantities of the same product.

A contract with the Navy Bureau of Ships which accounts for about 40 percent of total production extends into 1945, as do several smaller contracts. The company expects to get new contracts which will maintain production at the present rate for some time to come. The management believes that shipments will continue at the present rate of $2,000,000 per month during the rest of 1944. It is hoped that the same rate of operations may be maintained during 1945, but there may be a small drop in that year. The Navy program will depend largely on the course of the war in the Pacific.

The company has an Application and Sales Division which maintains contact with the Government services. Contracts have been obtained on competitive bids and no particular problems have arisen, although, occasionally, the question of the availability of manpower has arisen. The time necessary for clearance of Government orders has varied from several weeks to several months. The company plans to do everything possible, as soon as war work falls off, to enter into production for industrial users. There is no preference for either war or civilian work, but the large war orders for the same product do make possible more efficient operation.

RECONVERSION PLANS.

No specific work has been done on selection of products for civilian output, but much of the research engineering done for war needs will be applicable to peacetime production. Sales offices throughout the country have been watching the market, looking towards post-war business.

The plant will have to make some rearrangement of equipment for peacetime production, but the problem will not be difficult. Retooling will not be necessary unless new products are developed. It will probably take about 6 months before civilian production is fully under way, but production would not be interrupted during this period. Any small decline in war needs would permit manufacture of items for civilian use.

POST-WAR PRODUCTION.

No expansion of plant space is contemplated for civilian production. The company might be interested in purchasing some of the D.P.C. equipment it now has; the decision on this matter will be made by the head office of the company. Some inventory of materials would have to be built up for civilian production, but the plant would not need a larger inventory than it has carried during the war period.

The management hopes that post-war production will be 25 percent higher than pre-war. Before the war, the plant was operated at 80 percent

of capacity, with employees on a 40-hour week and one shift. Production costs will be somewhat lower than in 1940, but the reduction will be less than 10 percent. The most important factor in this reduction is the increase in output per man-hour.

Plant records show that output per man-hour, measured by the use of time standards established for each operation, has increased 15 percent since 1940. The increase is attributable to improved tooling and more complete jigging; more extensive use of tungsten carbide for metal cutting; and improvements in the methods used for training workers. The plant has a Planning Department which constantly works on the improvement of manufacturing methods. If post-war business is good, output per man-hour will be maintained at the war level, or even increased.

This plant has always subcontracted some of its work; during the war the volume has increased and a Subcontracting Department has been established. At present, about 25 percent of total production, in terms of value, represents work subcontracted. The plant will continue to employ subcontractors after the war, but the proportion of work sent out will probably be reduced to 10 percent. Most of the subcontract work is in the form of machined castings of steel, brass, and bronze. After the war, the plant will probably buy the castings and do the machining. The plant now takes some subcontracting for other plants of the parent company but will not do such work after the war.

EMPLOYMENT PROBLEMS.

It is estimated that post-war employment will be reduced to 1,700-1,800 from the May 1944 figure of 2,100. Before the war, the plant employed about 1,400. The management believes that there will be a gradual reduction in employment, rather than a sharp drop.

The proportion of women employed has increased from 6 percent in the pre-war period to 17 percent in May 1944. The management states that women have not been satisfactory in many operations, although their performance has been good in some jobs. It is expected that after the war the proportion will be about the same as or only slightly higher than in the pre-war period. Some Negroes were employed before the war in the foundry section and, at the time of the interview, Negroes made up about 3 percent of total employment. While it would not be management policy to discharge the Negro employees, some of these workers may be released because they have little seniority. Workers in the Armed Forces accumulate seniority while in service, and no difficulties are anticipated over their re-employment.

The plant has an agreement with the United Steelworkers of America, C.I.O., which covers all workers except patternmakers; the latter group is represented by the Patternmakers League of North America, A.F. of L. Under the terms of the C.I.O. agreement, which covers the great majority of the employees, if production were curtailed, hours would be reduced to 40 before any lay-offs were made. Lay-offs and transfers would then be made on the basis of plant-wide seniority until the number of men employed in each department reached the "normal" complement, and all employees who had been transferred since January 1940 had been returned to their former jobs. If additional reductions were necessary, hours would be cut to 32 before further lay-offs were made. Some consideration might be given, in agreement with the union, to the number of dependents and similar factors in

cases of extreme hardship. The transfers which would be made in effecting such a reduction would not necessitate any great amount of retraining.

The union would be called in to participate in planning any lay-offs or transfers which were necessary and would be given lists of employees to be laid off 48 hours in advance if possible.

STERLING ENGINE COMPANY
Buffalo, N. Y.

NATURE OF PRODUCT.

This company manufactures marine internal combustion engines and spare parts. Practically all work is on war contracts. Two types of engines are produced--one a war-emergency product and the other the engine customarily manufactured. Spare parts now constitute about one-eleventh of the total volume of production. Peacetime products were essentially the same as those now being manufactured--marine engines, diesel engines, and repair parts. Before the war, the company's engines were used by the Coast Guard in patrol boats.

At the time of the interview late in June, commitments on war contracts extended for about 7 months. The company anticipated that about 50 percent of its production would continue beyond its contract commitments. The current value of shipments is about $2,000,000 per month.

The company has been taking steps to get additional war contracts and no special problems have been encountered. It would prefer to produce some goods for civilian use now, since profits are limited on war contracts.

RECONVERSION PLANS.

This company will continue to produce engines and parts after the war. A new diesel engine has been designed and will be promoted as a post-war product. Engineering has been completed and a working model has been tested successfully. The company is now taking orders for civilian products, for post-war delivery.

When war production is curtailed or terminated, there will be no technical difficulties involved in reconversion, since the nature of the product has not changed during the war. The main problem in resuming civilian production will be to obtain the necessary materials. It is expected that there may be some delay in getting materials in sufficient quantity when the restrictions are lifted. Products could be produced for civilian use with only a small reduction in the volume of war output, perhaps 10 or 15 percent.

POST-WAR PRODUCTION.

There are no plans for the acquisition of additional plant space or additional equipment after the war. Indeed, it is expected that a considerable proportion of present facilities will be disposed of. Plant space has been tripled during the war, and, after hostilities cease, some of the facilities will be discarded, including a Government-owned plant. Eventually, the management believes, facilities may be reduced to what they were before the war, although it is hoped that there will be some expansion from pre-war levels.

No definite estimate was available of the probable level of post-war production. This plant has expanded production enormously during the war period, and there will doubtless be a substantial decline from present production volume. The management stated that the longer the war lasts, the greater will be the backlog of civilian business, yet it is conservatively assumed that production may return to the pre-war level, although it is hoped that it will be greater. After the war, spare parts will probably constitute one-seventh of the total output, compared to one-eleventh at present.

The management believes that post-war production costs will be substantially higher than those of the pre-war period. Labor cost was reported to have increased 50 percent, and no reduction in wage rates is expected after the war. Material costs have also increased substantially, but not as much as labor cost.

There have been no changes in basic production processes during the war period. The efficiency of plant operations has increased, however, because the company has been able to get new machines and equipment. The quality of the labor force was reported to be poorer than in the pre-war period. It is confidently expected that post-war operations will be more efficient than pre-war, although no quantitative estimate could be made. The plant has a time study department now, but it did not have one before the war.

The company subcontracts a great proportion of its work. Of the total value of shipments, approximately 65 percent represents the value of work done by subcontractors. Most of the work done at this plant is assembly, rather than parts manufacture. In peacetime, approximately the same proportion of work was subcontracted and it is anticipated that the same proportion will be maintained after the war. About 1,100 different subcontractors are employed. This company does not take subcontract work, nor does it plan to take such work after the war.

EMPLOYMENT PROBLEMS.

The plant employed about 200 workers before the war (119 in 1939) and its peak pre-war employment was about 600. In May 1944, 1,135 workers were employed. Management reported that the post-war work force might reach a maximum of 600-700, but that it was probable that the number would be smaller. Before the war, no women were employed except in the office, but at present women comprise about 20 percent of all personnel. Women will probably not be employed in the plant after the war. Some of the jobs on which women are now employed are considered rather strenuous. More important, 250 employees of the plant are in the Armed Forces, a number greater than the plant's pre-war employment total and it is expected that returning veterans will replace the women workers. No older men or physically handicapped workers are employed.

There has, as yet, been no tendency of employees to seek civilian work. Some of the workers at this plant are employees with long service and, in general, the employees are skilled, stable workers.

If operations had to be curtailed because of cutbacks in production schedules, working hours would be reduced before any lay-offs were made. This procedure is in accordance with the plant's contract with the United Auto Workers of America, C.I.O. The U.S. Employment Service stated that the company had already applied for permission to reduce weekly hours from 48 to 40. Employees would be selected for lay-off on the basis of plant-wide seniority. Some transfers of workers to new jobs would be necessary, but no serious problems are anticipated.

Employees accumulate seniority while in the Armed Forces and have 60 days after discharge in which to apply for their jobs.

SUGGESTIONS FOR GOVERNMENT ACTION.

The management's principal suggestion for Government action to aid in reconversion was that materials be released rapidly, thus permitting prompt resumption of civilian production. The management also feels that under competitive bidding procedures some companies make low bids to obtain contracts, but do not produce in accordance with specifications. Accordingly, it was suggested that in at least some cases it might be desirable to parcel Government contracts out among various manufacturers instead of placing them by competitive bidding. The company further suggested that the Federal Government lend financial assistance to municipalities for the construction of public works.

FARRELL-BIRMINGHAM COMPANY
Buffalo, N. Y.

War Production.

Before the war, this plant manufactured gears of all kinds for various types of power transmission work. At present it produces marine as well as other gear reduction units and gear-cutting machines. Work is done both on a direct contract and on a subcontract basis. Some production for industrial consumers has continued during the war.

Some of the plant's commitments extend into the middle of 1945, but most contracts end at the close of 1944. It is expected that the value of production will be close to a million dollars per month during the third quarter of this year, and about $750,000 per month during the fourth quarter. While schedules for 1945 are indefinite at this time, production will probably be lower than for the last quarter of 1944. The plant has already had some significant cutbacks in war contracts. All work is under the general direction of the Navy Department and some of the facilities operated by the company are owned by the Navy Bureau of Ships.

Reconversion Plans.

The management expects little change in the nature of output after the war. There is an experimental laboratory, with a staff of 4 or 5, working on present production, with the view that the developments made will be carried over into post-war production. Plans for the sales force have been organized on paper, and the company is now trying to train people for this work without interfering with the war effort. Materials are customarily ordered on a job-to-job basis, hence no steps will be taken to build up inventories of materials for civilian production.

Since post-war products will be very much like those now being produced, there will be no "reconversion period." Any capacity and manpower released by a reduction in war work could be used immediately for civilian production, provided there were advance notice. If war work were terminated suddenly, however, it might take 2 or 3 months to obtain materials for other production.

Post-War Production.

Plant space has been expanded slightly during the war and no further additions to space or equipment are contemplated immediately following the war. At a later date, after new designs have been developed, equipment may be gradually replaced. It is believed that during the next few years the volume of new equipment in use may be somewhat greater than the normal peacetime quantity.

The management anticipates that post-war production volume will be about the same as in 1940. Production costs will probably be somewhat higher than in the pre-war period, but the change will not be substantial. The decline in the quality of the labor force has thus far been more important than the increase in wage rates in increasing production costs.

Technical progress has not been very great during the war period. There has been some improvement in the quality of the product, however, particularly with respect to accuracy of finish. The management states that its chief concern is to turn out a "quality" product.

While no subcontracting was let in peacetime, there has been a large amount during the war period. The company designed marine gearings and, since its facilities were not large enough to supply the demand, it subcontracted the whole job to some firms and components to others. At one time, about 70 percent of all work was done by subcontractors but, at the time of the interview late in June, the proportion had been reduced to 30 or 40 percent. No subcontracting will be done after the war, unless there is more business than can be handled by the plant, a prospect the management does not consider likely. Most of the subcontractors have established businesses and will revert to the manufacture of their pre-war products. A few, however, may become competitors of this company after the war. Some of the plants doing subcontract work are new plants especially constructed by the Navy for the work they are now doing.

No subcontract work for new products will be taken after the war. Some of the company's regular work, however, is on subcontract, involving, for example, the production and installation of gearings for engine manufacturers. The product is the same whether manufactured on prime contract or subcontract.

EMPLOYMENT PROBLEMS.

Employment after the war will probably be about 500, the same number as were employed in peacetime, and approximately half the total of 1,096 for May 1944. Before the war, women were employed only in the office, but at present they comprise 18 percent of the total work force. The management does not plan to retain women in the plant after the war, because workers who can do several different jobs will be required. Most of the work is described as heavy, and women could not be switched around from one job to another as easily as men. About 6 Negroes are employed at the plant and the number will probably not change after the war. The company does not anticipate any difficulty in re-employing veterans. Former employees in the Armed Forces will probably displace newly hired employees when they return. About 75 percent of the present work force is skilled and the proportion will probably be the same for civilian production.

SUGGESTIONS FOR GOVERNMENT ACTION.

Management urged greater speed by the Government in settling terminated contracts.

GENERAL INFORMATION ON CUTBACKS.

During 1944, 15 or 20 of the plant's contracts were cut back. Most important were the 4 successive cutbacks in the contract with the Navy Bureau of Ships for gear units to be used in destroyer-escort vessels, since this work accounted for 30 or 40 percent of total plant employment. This contract was cut back during March, April, and May. In June, a week prior to the interview, practically all the remainder of the contract was eliminated, with final work to be completed in July. The plant had been delivering about 15 sets of gear units per month. The management reported that about 100 workers had been laid off and an additional 100 transferred over a period of 3 or 4 months, and that additional reductions in force would be necessary.

To ease the transition, the company worked out a program for converting some completed units to a new design, for which some new parts will have to be made. This work will continue through the end of 1944. No important changes in equipment or work arrangements will be necessary

for the manufacture of the new parts and conversion of the completed units, and production will continue without interruption.

In the past, notice of cutbacks was received sufficiently far in advance to enable the plant to rearrange its production schedules, but the 6 weeks' notice of the most recent cutback was not considered adequate. The Bureau of Ships has worked closely with the plant, however, asking whether cutbacks could be made without disturbing the plant's whole production program and cooperating with the plant to ease the transition. The U.S. Employment Service was notified of cutbacks immediately and cooperated effectively with the plant. Workers were referred to U.S.E.S. for releases and placement.

Subcontractors will suffer more serious curtailment than the plant as a result of the latest cutback, because the plant will have some work converting completed units to the new design. Subcontractors were given a month's notice.

EFFECT ON MORALE AND EFFICIENCY.

Although the number of workers affected by the cutback is not large and although jobs are still easily available in the Buffalo area, the effect on worker morale according to the management has been bad. The Navy Department has been moving machinery out of its plant because it is needed to complete operations elsewhere, and this action has brought about wild rumors. The union, the United Steelworkers of America, C.I.O., has asked for an investigation of the situation by the Government agencies in charge of war production and procurement. It maintains that there is no reason why available work cannot be done at this plant and states that there are reports that the Navy-owned machinery is being shipped to other plants of the company which are unorganized. There has been no direct information on the cutbacks from the company to the employees, there is no labor-management committee, and the union was not called in to participate materially in handling the lay-offs. The company representative informed the interviewer that the efficiency of some employees had decreased because of the cutbacks, while the performance of others had improved. It was also reported that there was no great change in the number of grievances.

EMPLOYMENT ADJUSTMENTS.

Average hours per week, which had been extremely long before the cutbacks, were reduced to 48. Weekly hours had been at least 58 for most employees and, in some departments, workers had had only one day off every 2 weeks. Lay-offs of 100 workers were made as particular operations were completed, over a period of several months.

The selection of workers for lay-offs and transfers was governed by strict departmental seniority. A clause in the union agreement permits some consideration for merit, but this clause was not used. The union was informed that there would be lay-offs, but was not given a list of persons to be laid off. The management stated that, had there been deviations from seniority arrangements, the union would have been called in. An attempt was made to give all employees 1 week's notice, but such notice was not always possible.

About 100 workers were transferred to other jobs in the plant. Some of the workmen who were offered jobs at lower rates accepted, but others asked for releases. About 30 or 40 of the transfers were made to jobs at the same rate. In the remaining cases, reductions in rates averaged 15 or 20 cents an hour. The rates for the new jobs, however, may ultimately be increased to the former rates as the result of upgrading. In general, workers were transferred from lathes, assembly floor, and bore mills to the gear cutting department. On-the-job retraining was given by supervisors and foremen and usually took 3 to 4 weeks. In a few cases, only a few days' or a few hours' retraining was required.

SPECIAL LABOR GROUPS.

About 20 to 25 women were laid off and 10 to 15 women were transferred to other jobs. Most of the transfers of women were made at the same rate and, in all cases, women were kept on the same types of jobs--filing gears, hand stamping, dressing work on babbitt bearings, and attending lapping machines. No difficulty was experienced in utilizing women after the cutback.

ROSS HEATER AND MANUFACTURING COMPANY, INC.
Buffalo, N. Y.

WAR PRODUCTION.

This company, a subsidiary of the American Radiator Company, Detroit, Michigan, is engaged in manufacturing cooling units for marine diesel engines, marine air-removal equipment, and equipment for the manufacture of synthetic rubber. The company is primarily a subcontractor, holding prime Navy contracts only to the extent of 8 percent of total production. Of the total output, however, 65 percent is for use by the Navy.

Before the war, the plant produced equipment for oil refineries, power plants, and various chemical and other process industries. Post-war output will consist largely of the same types of products manufactured during pre-war and war years. The company may also manufacture equipment for plastics producers and may continue to produce some cooling units for diesel engines for the Navy.

Commitments on war production run through November 1944, but the prospects for new contracts appear good. Production schedules for the third and fourth quarters of 1944 are set at $2,500,000 and $2,000,000, respectively. Anticipated volume for the first and second quarters of 1945 amounts to $1,000,000 per quarter if no new contracts are forthcoming. The company does not expect production to decrease to this extent, but the plans of the Navy and Maritime Commission will determine the issue, since shipbuilding is the backbone of the plant's war production.

This company has had 2 orders amounting to $1,500,000 terminated over a period of 6 months. The cutbacks resulted from the change in emphasis of the Navy program, from destroyer-escort vessels to landing craft. The chief effect of the cutbacks was the cancelation of plans for future production, and total volume has not suffered substantially. No lay-offs were necessary.

RECONVERSION PLANS.

A substantial decline in total volume of production may occur after the Navy work is terminated and before the production of civilian items is resumed. Due to the specialized nature of the equipment manufactured, designs are prepared only after an order is received. From 4 to 6 months are required until designs are complete and production is under way. The severity and duration of this production lag can be decreased if the Navy demand tapers off gradually. It is the belief of the management that work will be completed on ships under construction at the end of the war and that demand for equipment will, therefore, decline gradually. Under these circumstances, the plant will be able to adjust its operations from war to peace production without great difficulty.

The production of civilian items can follow any reduction in war schedules. No reorganization of the plant would be necessary, for although the present work is 94 percent war production, the type of product will be the same in the post-war period. If the decline in demand for war goods amounted to no more than 50 percent, the plant would not have to reduce its own output at all but would decrease the amount of work subcontracted. It was indicated that the plant will cushion the effect of any cutbacks by reducing or eliminating subcontracting.

POST-WAR PRODUCTION.

The resumption of peacetime production can be accomplished without additional plant space or facilities. The company plans to acquire additional machine tools, but these tools are not essential for reconversion to civilian production. Neither manpower nor materials are expected to present difficulties. The management expressed satisfaction with the present priorities system for allocating materials, stating that in many instances clearance in now obtained over the telephone and that the delays customary a year and a half ago have been eliminated. Release of materials is essential for peacetime project development, but otherwise no problems are anticipated.

Plans are being made to operate on a level of production equal to 25 percent of present volume during the conversion period, but 6 months after the war, production is expected to increase to a point somewhere between this minimum and present volume. However, even the lower figure--25 percent of present volume--represents a level of production 40 percent above that of 1940. The plant has expanded its pre-war floor space by 40 percent and is doing approximately 6 times its pre-war business.

Production costs are expected to be generally higher than in 1940. The price of raw materials has not increased substantially but labor costs have risen and it is believed that they will remain high for a few years. While some savings can be made by reducing overtime after the war, the company anticipates some difficulty in reducing weekly earnings. It is thought that a compromise will probably result.

Some wartime technological developments will promote better operating practices and tend to lower costs. The employees have become accustomed to working to closer tolerances, a change that will improve post-war quality. Standardization of parts is expected to save manpower and reduce costs.

The volume of production subcontracted outside the company exceeds the volume of plant production. In terms of labor cost, $306,000 was expended on direct labor by the plant and $836,000 was expended on direct labor outside the plant on subcontracts during 1943. The work subcontracted consists of machining and, to a lesser extent, assembly, but very little of this work will be done outside the plant when manpower becomes available.

EMPLOYMENT PROBLEMS.

Although production is expected to decrease sharply after the war, employment will not decline proportionally, primarily because subcontracting will be reduced and eventually almost eliminated. Post-war employment is expected to be about 250, compared with 300 this year and 200 in 1940. If most contracts were terminated suddenly--an unlikely event--employment would sink to 75 and increase gradually after 6 months.

The company now employs about 60 women, but no women were employed in production before the war and none will be used after the war; the work is considered too heavy for them to handle satisfactorily. The plant is small and specialization is not carried as far as in larger plants, a fact which makes it difficult to place women. Furthermore, the management states that turnover is high among women. Returning veterans are expected to replace them and it is believed that many women will quit of their own volition after the war.

When lay-offs become necessary, departmental seniority will be used as the basis for selecting workers to be terminated. Seniority governs both lay-offs and recall of former employees, under provisions of the union contract with the United Heater Equipment Workers, Local 897, C.I.O. During the first 30 days, workers are considered probationary and have no seniority rights. The company plans to reduce work schedules from the present 50-hour week to 40 hours before lay-offs are made.

SUGGESTIONS FOR GOVERNMENT ACTION.

This plant made several suggestions for Government aid in the reconversion period. Relaxation of restrictions on industrial and municipal power projects would ease the transition of this plant from war to peace, in the opinion of the management. Speedy contract settlement is also important. The financial aspects of contract termination are less important than authorization to the company to dispose of material. Much material (steel, brass, nonferrous tubing, castings and partially machined plate) would be on hand if contracts were canceled and the plant would want authority to move unusable items. Thus far no serious problem has arisen, and the plant purchased all but $50,000 of $200,000 surplus remaining after the cutbacks which occurred a year ago. After X-day, however, new orders will not be sufficient to allow purchase of surplus material.

D-N-X ENGINE COMPANY
Buffalo, N. Y.

WAR PRODUCTION.

The D-N-X Engine Company, a branch of the Hercules Engine Company of Canton, Ohio, was organized in 1942 for the sole purpose of manufacturing diesel engines for the Bureau of Ships, Navy Department. The entire productive capacity of the plant is now devoted to this program for which the company is a prime contractor. The company expects to disband after the war. This plant is an assembly plant and utilizes approximately 140 subcontractors as suppliers.

Present commitments run to the end of January 1945 with production schedules for marine engines, fire pumps, and generator sets totaling 200 units per month until the end of the contract. The company anticipates no new contracts, but the plant is at the disposal of the Bureau of Ships for the duration of the war. The company has been asked to make the plant available for storage space after the beginning of 1945; the facility may be placed in stand by status at that time.

The plant space and some of the present facilities are being leased from the Ford Motor Company which operated an automobile assembly plant on the premises. The D-N-X Engine Company retained some of the equipment originally in the plant and purchased the rest. The key personnel were also taken from the Ford Company, but most of the Ford workers were laid off. The United Auto workers of America, C.I.O., Local 424, bargaining agent at the Ford Motor Company, attempted unsuccessfully to persuade the plant to retain the Ford workers.

RECONVERSION PLANS.

It will require 45 days to remove present equipment from the premises. There is a small amount of Navy-owned equipment and there will be about $500,000 worth of engine parts made obsolete by engineering changes, which the Navy is best able to use.

The Ford Motor Company could perhaps use the plant for assembly of automobiles if automobile production were permitted before the war ends, unless the Navy needs a stand-by plant for diesel engines. After the war, of course, the plant will be returned to Ford automatically in accordance with the terms of the lease.

GENERAL INFORMATION ON CUTBACKS.

There have been many changes in design of the diesel engine, and, in addition, a contract for 350 generator sets was canceled. The major change in the engine was ordered early in May 1944 and involved re-designing the original salt-water cooled engine so that it could be used on land.

No advance notice was given the company of these cutbacks, but the plant was able to continue assembling the engines on hand and reduced employment gradually over a period of 4 months. In all, 80 persons were reported laid off during this period, further decreases in staff being accomplished by normal turnover. As soon as this plant received word of a cutback, subcontractors were notified, but many cancelation claims against the company resulted.

Since the lay-offs were few in number and extended over a period of months, the company did not call in the U.S. Employment Service to help place the workers terminated.

EMPLOYMENT ADJUSTMENTS.

At the time of the interview the plant was in the process of retooling, and employment had reached a minimum of 275 workers. As tooling is completed employment will increase. Fifty or 60 additional workers will be required during the next 4 months, with employment of 370 predicted for peak production in November 1944.

On two occasions, cutbacks resulted in change of hour and shift arrangements. In February, following a shift of contracts, the plant changed from a 54-hour week to a 48-hour week. Hours were later restored and two shifts of 9 hours each were scheduled. In May, after retooling began, hours were again reduced to 48 and the second shift was eliminated.

Workers were transferred to other jobs at the start of retooling. The company states that some workers who were offered transfers resigned, but that otherwise there has been no noticeable increase in the number of quits. Lay-offs were made on the basis of plant-wide seniority as established by company policy; the management stated that this method has enabled the plant to retain its most experienced men. Negotiations were in process on a union contract with the United Auto Workers of America, C.I.O., but whether or not any change in seniority rules would be made was not known at the time of the interview.

The management expressed doubt that it would be successful in recalling the persons laid off. Most of the experienced men were retained but recruitment of common labor will be difficult, in the company's opinion.

SUGGESTIONS FOR GOVERNMENT ACTION.

Sudden cancelations and changes in design have resulted in claims being placed against the company by its subcontractors. The management is of the opinion that the contracting agency of the Government should settle claims of suppliers and that immediate settlement or, at least, prompt audits should be made. It was indicated that the Navy has been slow in this regard and that, as a result, the company has lost good-will of some of the subcontractors.

LINDE AIR PRODUCTS COMPANY
Tonawanda, N. Y.

NATURE OF PRODUCT.

The entire output of this plant serves a direct war purpose, although the product manufactured, oxygen-production and -distribution equipment and chemical-production equipment, is the same as that of pre-war years. Output is valued at $250,000 to $300,000 per month, and is expected to remain at this level through the third quarter of 1944 and possibly through the fourth quarter. Commitments on current contracts run to the end of 1944, and beyond that date in some instances; however, future production schedules are uncertain. There are definite plans for obtaining new war contracts, but the details are not known at the local office. As an indication of future plans, however, the management stated that if the use of plastics were to increase, this plant would make equipment for its manufacture. Actual production prospects for this particular plant depend largely on the allocation of orders by the New York office; even the routing of material to this plant is handled centrally.

RECONVERSION PLANS.

There will be no reconversion problem in this plant. The equipment manufactured here is of a specialized type and each item must be custom built, whether the end use is for war or peace production. Tools are standard items and plant equipment and space adequate. There is no Government-owned equipment, and the nature of the business precludes the possibility of surplus inventories after the war.

While reconversion itself will constitute no problem, improper or ineffective production scheduling might create difficulties. Since no inventories can be accumulated and since it takes approximately 3 months to obtain materials, orders must be received 3 months in advance of any cutback if employment adjustments are to be avoided. A gradual reduction of war demands would permit advance planning of production and would be preferred to a sudden drop in war orders. Any reduction in war contracts would permit profitable resumption of civilian work.

POST-WAR PRODUCTION.

The level of post-war production could not be estimated by the management of this plant. Plans are made in the main office and production schedules for each plant depend on allocations made there. Post-war production costs are expected to be higher than pre-war costs, since improved methods of operation are insufficient to offset higher labor and material prices.

There have been a few improvements in production methods during the war. The most important is the increased application of automatic welding, a technique developed before the war but one which has been applied more extensively since then. The process will be continued after the war, but estimates as to cost or time saved by this method are not available.

There is more subcontracting now than there was before the war, but in the post-war period, the proportion of work subcontracted will be reduced. At present, 10 to 25 percent of total production is subcontracted to other companies, the amount varying from time to time depending on the urgency of the work and the capacity of facilities at the Linde plant. All subcontracting consists of work that could and normally would be done on

the premises if facilities and manpower were available. The management emphasized, however, that the reduction or elimination of subcontracting after the war would have very little effect on its subcontractors since the work any firm receives from the Linde Company is a very small percentage of the total business of the subcontractor. At present there are about 200 subcontractors (most of them in the Buffalo area) and the number is increasing.

EMPLOYMENT PROBLEMS.

Employment at this plant increased from 200-400 in 1939 to a peak of 1,007 in April 1943. In June 1944, 782 workers were on the pay rolls. As has been indicated there will be no decrease in employment occasioned by reconversion.

Within limits employment varies directly with production, but several factors modify this relationship. First, by varying the amount of subcontracting the plant can decrease production without reducing employment proportionately. Second, a reduction in hours worked may enable the plant to decrease production while maintaining employment. As an example, the employees at the plant were scheduled to work only 2 days a week 4 years ago, compared to the present 54-hour week. If it were necessary to reduce production, subcontracts would be cut and then hours would be reduced to 40 per week, before any lay-offs were made.

In the event lay-offs were necessary, departmental seniority would determine the order of termination, with skill and merit taken into consideration. Workers laid off would be later rehired, wherever possible. These procedures are established by company policy; there was no union agreement at the time of the interview. A National Labor Relations Board election recently gave the United Gas, Coke and Chemical Workers, C.I.O. bargaining rights and regulations will depend on the terms of the union agreement.

The composition of the work force will change substantially after the war. Women workers, who made up about 20 percent of the work force in May 1944, will not be retained. There will be no terminations with a view to eliminating women, but voluntary withdrawals together with the return of veterans will bring about the same results. The management reports that it is difficult to recruit women with skill or experience equal to that of men. Furthermore, the percentage of skilled workers is expected to increase. At present about 60 percent of the workers are skilled, and 40 percent unskilled. After the war the percentage of skilled workers is expected to increase, largely because the unskilled workers will leave and more skilled men will be available. Machinists, welders, and coppersmiths will be used in the same proportions as at present, however.

Prospects for employment of veterans appear good. There are at present 200 to 300 employees in the Armed Services and the company intends to rehire them regardless of seniority. In fact, the management representative stated that the company would be favorably inclined toward veterans who have never worked for the company in preference to some present employees with little seniority.

UNION CARBIDE AND CARBON COMPANY
Electro-Metallurgical Division
Niagara Falls, N. Y.

NATURE OF PRODUCT.

War products constitute 95 percent of the total production of this plant, but the products manufactured are generally the same as those produced before the war. Contracts consist primarily of orders from steel and alloy producers for ferro-alloys (ferro-silicon, silicon metal, and manganese alloys) and calcium carbide. For this reason, there are no production schedules in the usual sense, but the demand for the company's products is increasing. Many items are critical materials not made elsewhere.

RECONVERSION PLANS.

This plant will have no reconversion problems whatsoever. Post-war products will be the same as war and pre-war items; hence, no interim shut-down or retraining of workers will be necessary. Materials, will be easier to obtain after the war than at present, since they come from all parts of the world, and wartime shortages have resulted principally from the inadequacy of shipping space.

The extent to which war production must be reduced in order to make possible a return to civilian production cannot be estimated. This plant is part of a coordinated group of chemical facilities and production must be in balance for the whole organization. There are apparently no intra-plant technical or cost problems, however, that would interfere with production for civilian use, in any reasonable quantity, during the war period.

POST-WAR PRODUCTION.

This plant has no need for additional plant space or facilities in order to start production for civilian markets. Manpower is the primary need at present, but this shortage is expected to disappear with the termination of the war.

Immediately after the war this plant will have to decrease output to about 60 percent of capacity for a period of 4 to 6 months. This interim drop in production will result from a drop in demand while the steel mills are converting; when steel production increases after reconversion, this plant will likewise increase its output. The situation in the rubber industry will also affect this plant to some extent, since it supplies acetylene for rubber manufacture.

After the transition period has passed, production is expected to increase to a level higher than that of 1940. Post-war costs are unpredictable because of the great variety of materials used, but labor cost is expected to remain high. Post-war production will be influenced by some wartime technological developments but military secrecy prevents their disclosure. The nature of the business, involving the manufacture of basic materials, precludes the use of subcontractors at any time.

EMPLOYMENT PROBLEMS.

The work force at this plant increased from 2,300 in 1940 to 2,900 in June 1944 and the proportion of women rose from 3 percent of the total to 12 percent during the same period. Total employment will not decrease during the reconversion period, while the plant is operating at 60 percent capacity.

Lay-offs during the transition period will be confined to a few women, workers past retirement age, and employees released so that veterans may be reemployed. Women are not employed in production departments in normal times, since the work is considered too heavy. Many women will be replaced by returning veterans after the war. In June 1944, approximately 950 former employees were in the Armed Services.

When lay-offs are necessary, ability and length of service will be taken into consideration, according to company policy. No union is recognized at present, but organizing is being done by the United Gas, Coke and Chemical Workers, C.I.O. and by District 50 of the United Mine Workers. The status of the present lay-off policy will remain somewhat uncertain until it is known which union, if any, is recognized. Hours will be reduced from 48 to 40 per week before lay-offs are made.

Post-war training will present no problems. Skills will be essentially the same as at present and the apprenticeship system now in use will be continued. Some features of the T.W.I. courses will also be used for post-war training. A few returning veterans may have difficulty in adapting themselves to new work methods, but in general the management believes that the returned soldier will be more capable than when he entered the Armed Services. Every effort will be made to place all veterans, although placement of some handicapped veterans will be difficult because of the heavy nature of the work.

The management has noticed a marked increase in the number of persons resigning to seek nonwar employment. The desire to establish themselves in their former jobs is thought to be the principal motivation and the company believes that many workers recruited from Texas, Mississippi, and the East are leaving the area.

SUGGESTIONS FOR GOVERNMENT ACTION.

This plant made no suggestions for Government action other than to state the need for additional manpower. There is no Government-owned equipment and there will be no unusable surplus materials after the war.

E. I. DU PONT de NEMOURS CO., INC.
Tonawanda, N. Y.

NATURE OF PRODUCT.

The products manufactured by this plant—rayon, yarn, and cellophane—have not changed essentially during the war period. The only new activity undertaken has been the manufacture of strong yarn for tire cord, which accounts for about 10 percent of total employment. To produce this yarn for tire cord, the company converted some cellophane-producing capacity and installed some D.P.C. equipment. The plant is new operating at capacity and expects to continue operations at this level.

RECONVERSION PLANS.

There is a research laboratory at this plant with a staff of 180 doing development work not only for this plant but for other Du Pont plants as well. The plant management has had ideas for the improvement of their products, but these ideas have not been implemented because of the shortage of manpower. As a matter of fact, the management reports that its chief concern during the war period has been to "keep the plant running," a difficult task in view of the fact that the plant has been stripped of its supervisory and technical staffs and has faced serious shortages of manpower, equipment, and materials. The marketing force has been maintained during the war and no special planning for post-war distribution is necessary.

This plant will have no reconversion problems except with respect to the capacity for manufacturing strong yarn for tire cord. Company officials believe that production of this strong yarn will end when the war is over, because it will be impossible to market the product in peacetime in competition with that produced by more economical processes. At the time the equipment was installed, the Government's chief concern was speed rather than economy of operations. The plans adopted made it possible for the company to produce strong yarn 6 to 8 months sooner than would have been possible had other processes been used.

The company has an option on this D.P.C. equipment, which consists of rubber-lined filters, barometric condensers, evaporators, and the like, but it is uncertain whether the option will be exercised. The Defense Plant Corporation is obligated to move out the equipment within 60 days if the company does not take up its option. There are some slight possibilities for converting the equipment to other uses, but conversion would take 6 to 12 months, even if all the materials and equipment needed were readily available. Reducing the volume of tire cord production would not permit the plant to increase its civilian output, since all other facilities are being operated at capacity.

POST-WAR PRODUCTION.

This company will probably expand its plant space and purchase some additional equipment after the war, but plans were not crystallized at the time of the interview. It is expected that production will be about equal to the 1940 volume, but it is considered possible that it may be greater. Production costs will probably be somewhat higher than in the pre-war period. The company does not anticipate any reductions in wage rates and believes there should be no such reductions. Material costs will probably also be higher than they were before the war.

The rayon industry made enormous strides in introducing technical improvements in peacetime, but, during the war period, progress has been interrupted and improvements have been negligible. The management states, however, that it has the technical information to make further improvements and it is confident that, after the war, when manpower, materials, and equipment are more easily available, such improvements will be made. Most changes will probably be improvements in the quality of the product.

EMPLOYMENT PROBLEMS.

Employment at this plant during 1944 has been about 2,200, and it is expected that there will be no marked change in the size of the work force after the war. Total labor requirements will decline somewhat, but employment may not decrease since hours will probably be reduced from 48 to 40. If the curtailment or termination of the production of heavy yarn coincides with the change of hours in the Buffalo area from 48 to 40, there will probably be no reduction in employment. If, however, production of yarn for tire cord is ended while the 48-hour week order is still in force, some small decline in employment is anticipated. A good proportion of the labor at this plant is "overhead" labor which does not vary directly with production. Thus, if production fell to 75 percent of the 1940 level and it was anticipated that after a short period it might return to the 1940 volume, the plant would catch up on repairs, and the reduction in employment would be negligible. If production were 50 percent higher than in 1940, the increase in labor requirements would probably be about 20 percent.

The composition of the work force will change only slightly after the war. Women now comprise about one-fourth the total number of employees, and the proportion will probably be reduced slightly after the war. Negroes have always been employed in both operating and maintenance jobs. Their number has increased during the war, but no estimates of their post-war employment prospects could be made. The number of physically handicapped workers employed has also increased since war began and the proportion will probably remain unchanged after the war.

About 200 former employees of the plant are now serving in the Armed Forces, and the management does not anticipate any difficulty in rehiring these workers. It may be necessary to lay off some of the present employees to place the veterans, however. The company is prepared to go further than the law requires in reemploying veterans; for instance, it will not insist that application for reemployment be made within the 40-day period after discharge.

This plant has a contract with an independent union, the Buffalo DuPont Workers Independent Union, and the written agreement is 5 or 6 years old and couched in broad terms. At the time of the interview, the union had just been certified as bargaining agent by the N.L.R.B. and a new written agreement was being completed. The question of whether hours were to be reduced if operating schedules were curtailed would be negotiated with the union. If lay-offs were necessary, the first step would be the removal of women from assignments which traditionally were given to men. New York State law provides that women cannot work after 10 o'clock in the evening and most plant operations are continuous. Next, workers would be selected for dismissal on the basis of their general record—seniority, ability, performance, and attendance. The union would have considerable voice in planning the lay-offs, it was stated, and would be called in before any dismissals were made. In general, questions would probably be settled on the basis of individual situations, rather than in accord with fixed policy.

Some transfers will be necessary if the work force is reduced, but no serious problems are expected to arise. Transfer of workers from one department to another is standard practice at this plant and employees have always been moved to different jobs as required. Moreover, turnover has been low and the work force relatively stable, hence it is not expected that any great amount of retraining will be required. For about 80 percent of all jobs, a year's experience is necessary before the worker is considered fully skilled, and only 10 percent of all jobs require as little as 2 to 3 weeks' training. New employees are put through an established training routine, an important aspect of which is training in safety.

NATIONAL ANILINE AND CHEMICAL COMPANY
Buffalo, N. Y.

WAR PRODUCTION.

While the greater part of this plant's present output is for war purposes, the products manufactured are essentially the same as those produced in peacetime—dyestuffs, chemicals, and pharmaceuticals. A small proportion of the work is done on direct war contract. A D.P.C. plant is now under construction for the manufacture of one of the company's products for war use. Production of dyestuffs for civilian consumption has been curtailed somewhat because of shortages of the basic raw materials. Materials are allocated each month on the basis of end use.

Thus far, the company has had no problem in getting enough orders. The chief factor responsible for restricting output has been lack of manpower. It is expected that production will continue at about the present rate for some time to come.

RECONVERSION PLANS.

The plant has for years had a large research department which has worked on the development of new dyes and chemicals. The types of products which will be manufactured after the war will be generally the same as those now being made. The sales force has been maintained during the war and no extensive plant reorganization will be necessary for conversion to civilian production.

Whether there will be any reconversion problem at all will depend on the pace at which war production declines. If war work were ended suddenly, it might be some time before orders were available for civilian business. From a technical standpoint, however, the plant could use any capacity freed by a small reduction in war output for the production of items for civilian use.

POST-WAR PRODUCTION.

Plant space will not be expanded significantly after the war, but some new equipment will be purchased. The magnitude of the additions will depend largely on the post-war demand for the company's products. No specific plans had been made up to the time of the interview.

Since practically all of the plant's products go to other processors, the management is reluctant to make estimates of the probable level of post-war production. The volume of output will depend largely on general business conditions. The management believes production will be higher than it was in 1940, but no more definite estimate was available. If wage rates remain at their present level, post-war production costs will be higher than in the pre-war period, but somewhat below present levels. A reduction from present levels is anticipated because it is expected that operating efficiency will be improved.

During the war period, the normal improvement in processes has been accelerated, particularly for the war products. This work will carry over to peacetime production to a limited extent. Most of the improvements made have resulted in savings of labor requirements.

EMPLOYMENT PROBLEMS.

Employment at this plant during 1944 has been about 2,000, approximately the same number as were employed in 1940. It is believed that there will be no change in the size of the work-force in the post-war period. Women were employed before the war only in clerical work and in small packaging; during the war they have been placed in positions throughout the plant and they now represent more than 20 percent of total employment. About half of the women are Negro. The number of women, both Negro and white, will probably decline sharply after the war and revert to the 1940 proportion, 3 to 4 percent of total employment. Much of the work at this plant is heavy and dirty, and is not considered suitable for women in normal times. Negro men now constitute about 5 percent of the total work force and no change is expected in the number employed after the war.

A number of former employees of the company have returned to the plant from the Armed Forces, and thus far there has been no difficulty in placing these workers. In all, the plant has 450 employees now serving in the Armed Forces and it does not anticipate any problem in reemploying these men, though, of course, much will depend on general business conditions. The union's attitude on the question of granting absolute prefereace to veterans has not been expressed. A number of physically handicapped workers are employed, most of whom have long seniority with the company.

New workers are generally unskilled, but a considerable period of time is frequently required before they are fully trained.

If production were curtailed, a reduction in hours might be considered, but such a step is not specified in the plant's agreement with District 50 of the United Mine Workers of America. The management definitely plans, however, to revert to a 40-hour week as soon as manpower is more easily available. Lay-offs which were necessary would be made in accordance with seniority, provided qualifications were equal. Although the worker's seniority status is determined by the length of service in the plant as a whole, seniority provisions would be applied within each department. If the work force were reduced, there probably would be a substantial number of transfers and demotions. On-the-job training would be required, but no serious problems are anticipated because such transfers and retraining are not uncommon at this plant. The union would not participate in the handling of lay-offs, and there is no stipulation on the amount of notice which must be given employees or the union.

E. I. DU PONT de NEMOURS COMPANY, INC.
Electro-Chemical Department
Niagara Falls, N. Y.

NATURE OF PRODUCT.

This plant manufactures the same type of product made before the war--heavy chemicals and solvents. While only 10 percent of the total output is made under direct war contracts, 80 to 85 percent of all production contributes to the war effort. All of the war orders are on short-term contracts, 3 months at most, and all are initiated by procurement agencies of the Government. The management believes that production will remain substantially at present levels through 1944. New orders are expected to taper off after the defeat of Germany.

RECONVERSION PLANS.

This plant will have no technical reconversion problems whatsoever. It is likely that there will be some difficulty in obtaining containers for peacetime production but the plant could start production for civilian use without delay. Marketing problems, rather than production difficulties, will receive primary attention after the war.

The management expressed the hope that the return to peacetime markets would not be abrupt. Gradual demobilization of veterans and gradual relaxation of manpower controls would minimize plant employment readjustments. Any reduction in war demands would make possible the return to civilian markets.

POST-WAR PRODUCTION.

The level of post-war production is somewhat uncertain. Before the war, the home office at Wilmington, Delaware, followed the practice of building new plants instead of expanding existing facilities. Production at this plant depends to some extent on whether this policy is continued, but it is expected that output will be at least equal to pre-war levels. This plant has adequate space for civilian production and will need no new equipment except for replacement.

Changes in material costs are expected to be moderate, while future labor costs are declared to be unpredictable. No technological developments other than normal process improvements have occurred to affect efficiency of operations.

The company uses subcontractors only for construction work and there will be no change in this policy after the war.

EMPLOYMENT PROBLEMS.

In May 1944 the plant employed 1,924 workers. Employment was approximately the same in 1940 ranging from 1,500 to 2,000, with 1,200 in the operating departments. This variation in employment was due primarily to changes in the number of construction workers. In general, employment in plant operations varies directly with production, and remains relatively stable. Although 283 women were employed in May 1944, they occupied only minor clerical jobs. It is believed that the high skill required, the hazardous nature of the work, and the higher turnover among women make their employment undesirable.

This company is making definite advance plans for the re-employment and placement of war veterans. A full-time co-ordinator will be hired to place each returning veteran and follow his progress. A card index is being prepared of the 500 men in the service, with the case history of each man, including a notation of new skills learned while in the service. The union has accepted the company policy concerning veterans, according to the management's report; but the company expects some difficulties to arise if workers are compelled to accept less desirable jobs to make room for returning veterans. Moreover, there are only a limited number of openings for severely handicapped persons--mainly guard and clerical jobs.

No major cutbacks have as yet taken place, and there have been no lay-offs recently. Workers laid off are given one week's notice or a week's pay. If lay-offs become necessary, they will be administered according to a plant-wide seniority plan but the qualifications of each worker will be taken into consideration. This plan, which also governs promotions, is incorporated in the contract with the Niagara Plant Employees Union. Whether lay-offs become necessary will depend largely on whether the 48-hour week is maintained. This workweek requires 3.5 men per job; the management indicated a preference for a 42-hour workweek (4 men per job) or even a shorter workweek.

Training will not be a post-war problem, inasmuch as there will be no change in skill requirements. T. W. I. courses will be introduced shortly, however, and will be used after the war.

HOOKER ELECTRO-CHEMICAL COMPANY
Niagara Falls, N. Y.

NATURE OF PRODUCT.

This plant produces various electro-chemicals, the principal one being chlorine. Most products now made were also manufactured before the war. Ninety-two percent of current production consists of war items; the plant is a prime contractor for the Chemical Warfare branch of the Army, the Army Engineer Corps, and the Navy. Two secret products, P-45 and XHEX, require 10 percent of the total manpower and account for 2 percent of total tonnage. The P-45 plant is Government-owned and is valued at $1,500.000.

Commitments on war contracts run through the first quarter of 1945, with no variation in the volume scheduled from quarter to quarter. No steps to obtain additional war contracts appear to be necessary. The plant management and representatives of the Chemical Warfare Service work closely together; the company has built several plants throughout the United States for the War Department for the manufacture of war gas. No large new contracts are in prospect at present.

RECONVERSION PLANS.

The company maintains a large research department for the development of war and civilian products. In addition, a planning committee of department heads is considering means of regaining old markets, developing new outlets, and perfecting general organizational plans.

Actual resumption of peacetime business could take place without delay. There have been no difficulties in obtaining sufficient supplies of toluol, benzol, and other materials. Supplies of toluol and benzol were restricted at the time of the interview, but they were expected to increase shortly. Furthermore, cutbacks of war production would leave the plant with no unusable materials. Customers are available and any decrease in war demand would be offset, in part, by an increase in civilian output.

POST-WAR PRODUCTION.

Post-war production is expected to be 80 to 85 percent of present volume, and approximately equal to 1940 volume. No new facilities will be required for return to peacetime activity, but the management indicated that the plant might purchase some of the Government-owned equipment if the price were satisfactory.

Production costs are expected to be higher than before the war. Wage rates will probably be above pre-war rates, in the opinion of the management, and material prices will also be higher. The increase in material prices over 1940 levels is expected to be less than the change in wage rates, however.

A few wartime technological developments will probably contribute to increased efficiency after the war. Improved welding methods have been developed, while the plant has gained experience in welding alloyed metals. Alloys have been improved, and superior methods of electronic control and analysis have been developed.

The nature of the product precludes the use of subcontractors for either war or peace production.

EMPLOYMENT PROBLEMS.

A sharp drop in employment to about 80 percent of present levels and a return to 40 hours from the present 48-hour week will accompany the termination of war demand, according to present expectations. Employment does not normally change in direct proportion to output, however, due to both indirect labor requirements and variations in volume of production made possible by changing the output of the machines. Thus, a 25 percent drop in the volume of production would result in a decrease in employment of only 10 percent. Employment increased from 700 in 1940 to 1,200 in June 1944; the number of women workers rose from 60 to 160.

Women will not be used in production work after the war. They were not employed in this capacity before the war, because the work involves dealing with dangerous gases and corrosives as well as heavy lifting. It was necessary to secure special authorization from the State before women could be employed in such jobs during the war. The plant reported that the women are performing capably in a limited number of positions, but that their jobs must be selected carefully. Of the 100 additional women hired since 1940, 50 are in production and they will be released soon after the war ends.

About 300 former employees are now in the Armed Forces. Apparently no special plans have been made for their reemployment beyond the requirements of law, and the management does not know how many intend to return. Moreover, there are only a limited number of jobs that a severely disabled man can perform, principally positions as watchmen.

When lay-offs become necessary, both seniority and qualifications will be taken into account. If seniority and qualifications are relatively equal, consideration will also be given to family status, according to the terms of a proposed agreement with the Niagara Hooker Employees Union. The company attempts to give employees paid monthly a month's notice and other workers a week's notice in advance of lay-offs.

Although post-war skill requirements will be the same as those for war work, the plant intends to continue its training program. Classes in welding, machine work, lead burning, and electricity have been successful and will be used after the war to the extent necessary.

SUGGESTIONS FOR GOVERNMENT ACTION.

The management recommends that Government-owned equipment be removed as soon as it is no longer needed. No difficulty is expected in this regard, however, and the removal of some equipment will be requested in November 1944.

SOCONY-VACUUM OIL COMPANY
Atlas Refinery
Buffalo, N. Y.

NATURE OF PRODUCT.

The principal new item manufactured in this refinery during the war is 100-octane gasoline. This product accounts for about 8 percent of the total production of the plant; the entire output is sold to the Defense Supplies Corporation. The other products are 80-octane gasoline, waxes, B. B. stock, and related products.

Since contracts are let in the New York office, the local management could not report the extent of war commitments or the prospects of obtaining new war contracts. Current production of 100-octane gasoline totals 1,700 barrels per day and production of alkylation stock for 100-octane gasoline totals 1,000 barrels daily. Production schedules for the third and fourth quarters of 1944 will not change from the present level of output.

RECONVERSION PLANS.

No plans are being made to resume complete civilian production since the pre-war products will be made after the war. Prospects for reconversion depend on the decisions of the Petroleum Administration for War, and on the New York office of Socony-Vacuum. If the company were directed to decrease output of 100-octane, for example, production of this item would be entirely eliminated in the required number of plants. The management expressed a desire for 100 percent elimination of war production in preference to a smaller cutback, but indicated ability to adjust operations to any decrease in war output.

The change from war to peace production will be much more easily accomplished than was the conversion from peace to war. In the latter instance it was necessary to separate stocks, in order to produce new war products. The return to peacetime activity will require less precision, and it will be possible to blend excess high-octane stocks to lower octane ratings.

POST-WAR PRODUCTION.

Output after the war will depend primarily on the allocation by the company of crude stocks to the plant. While the management expressed some uncertainty as to the volume of crude which would be allocated, it was indicated that the plant would probably go back to its pre-war level of production. If rationing controls were removed, the demand for gasoline for automobiles would probably expand greatly even before new cars came on the market. Facilities, space, and equipment are sufficient for immediate post-war needs, and the plant is using no D.P.C. equipment.

Post-war production costs are likely to be higher than those of 1940, primarily because labor costs will remain high. Increased costs during the war, coupled with controlled prices, have resulted in poor financial conditions in the oil-refining industry, in the opinion of the management. It was stated that material costs have been held down, except for that portion attributable to labor cost. The price of crude is of no direct concern to this plant, however, since crude is purchased by the N. Y. office and shipped to the Buffalo plant.

Improved methods learned through war experience will be used to improve peacetime products. The units now making 100-octane gasoline have been improved, and better gasoline will be available after the war, it was predicted. Furthermore, the company is engaged in research on new products; however, the details were not available at the Buffalo plant, since the research is centralized in laboratories at Brooklyn, N. Y. and Paulsboro, N. J. The company indicated that output of civilian gasoline could be twice that of aviation gasoline from the same facilities, because of the low percentage yield of 100-octane and the longer production time required.

EMPLOYMENT PROBLEMS.

The number of workers employed after the war will depend primarily on the length of the work week. The refinery intends to return to a 40-hour week as soon as possible after the war. Even if production were to sink to one-half the 1940 volume, the company would reduce hours rather than resort to lay-offs.

Employment has not changed substantially from the peacetime level. About 300-350 workers are employed. There have been no cutbacks; changes in employment from month to month are due to normal turnover and military withdrawals. Women are employed in the office and laboratory of the plant but only 2 were employed on production units at the date of the interview. Little change is expected in this respect after the war.

The management stated that all veterans will be rehired; some have already returned. Men drafted receive 2 months' full pay and, if they have dependents, one-half the difference between their wages and service pay. This plan extends to the end of 1944 with prospects for renewal. Moreover, pension, seniority, and death benefit rights are retained by men entering the armed forces.

The refinery anticipates no training problem; the same skills will be required after the war as at present. Furthermore, there will be no transfers to lower grade jobs.

Departmental seniority governs lay-offs and promotions; if the seniority of 2 workers is equal, ability is the determining factor. Lay-offs and upgrading procedure is determined by company policy and is not incorporated in the contract with the Petroleum Union of Atlas Works, an independent union.

Most of the men have been with the company for years and value their seniority rights. This fact, together with fair prospects for post-war employment, has resulted in low turnover, with few workers leaving to seek nonwar employment.

CARBORUNDUM COMPANY
Niagara Falls, N. Y.

WAR PRODUCTION.

This company manufactures abrasive materials in various forms. Only a small percentage of production is on direct contract with the Government services, but a relatively large proportion of output is for war purposes. The company produces refractory materials for use in the boilers of landing craft, globar heating elements for magnesia, materials for radar equipment, wheels for grinding high-speed tools, and a variety of similar products. Production for civilian use is also substantial, and includes tools for farmers, sandpapers for finishing wood, and abrasive sticks and stones for miscellaneous uses. Essentially, the type of product has not changed during the war period, although some new products have been developed. A number of items were eliminated by Government restriction when materials became critical.

Most work is done on short order, but company officials expect production to continue at about the present rate during the rest of 1944. The outlook for 1945 is less definite. The company has quoted on all bids opened by the various Government agencies and is committed to supply about half the requirements of Navy Yards for certain materials for one year.

RECONVERSION PLANS.

The plant maintains a large research department and has developed some new products for post-war promotion. Most post-war products, however, will probably be the same as those produced in pre-war years and new products will doubtless contribute only a small part of total output. The sales force has been well maintained, most of the personnel having become advisory technical men during the war. There will be no conversion problem at this plant. Production for civilian use could be expanded at present, if manpower were available. Already, operations have been curtailed because of the shortage of labor. No difficulties are anticipated in getting adequate supplies of the materials required—coke, sand, bauxite, cloth, and glue.

POST-WAR PRODUCTION.

When the war is over, the plant will probably do a considerable amount of modernization. Many new tools have been developed which the company has not been able to install during the war period. This new, superior equipment will be purchased to replace the existing older types of machines. Some additional plant space will also be acquired because of rearrangements of equipment. Expenditures for plant space and equipment will probably total one or two million dollars. Company officials state, however, that there may be some difficulty in financing the proposed improvements.

The volume of production after the war is expected to be about the same as in 1940. Two or 3 years later, production may be increased beyond this level to meet world needs for replacement of industrial equipment. Production costs will probably be substantially higher than in 1940, because both wage rates and material costs will be greater. Labor costs are now 35 percent higher than they were in 1941.

It is expected that there may be some improvements in plant efficiency. The plant has a mechanical department which works constantly on improvements of equipment and modernization of operating methods. During the war period,

changes have been made to lighten the jobs so that a greater number of women could be employed. After the war, improvements will probably be made at a more rapid rate than in pre-war years. The changes may result in increases in output per man-hour or in improvement in the product. In any case, the management reported that such changes as are anticipated will probably have no significant effect on costs.

EMPLOYMENT PROBLEMS.

Employment at this plant increased from 3,000 in 1940 to 5,500 in May 1944. Post-war employment will probably be about 3,600 if the plant operates on a 40-hour week. While no increase in production from the 1940 level is anticipated, it is believed that employment will be higher than in 1940 because the labor force will not be as well trained as the staff employed before the war. Business here is usually seasonal, since a large part of total output goes to the automobile industry, but the company has attempted to stabilize its operations.

Personnel engaged in maintenance, research, and similar "non-productive" jobs constitute about 25 percent of the total work force, hence production might be increased 50 percent with a 25-30 percent rise in labor requirements. Similarly, if production were reduced, the decline in employment would be less than proportional. Workers can be trained for most jobs in 4 to 6 weeks, and only 15-20 percent of all jobs are considered skilled.

Before the war, about 500 women were employed and they comprised about one-sixth the total work force. In May 1944, nearly 40 percent of all employees were women. The proportion will decline after the war but, since some new operations have been developed, it will probably remain somewhat higher than it was in the pre-war period. The company has 1,600 men in the Armed Forces and expects that some women will be displaced when these workers are reemployed. It was reported by management that the union, the C.I.O. Gas, Coke, and Chemical Workers, will want to have all the women laid off.

Only a few Negroes were employed at the plant in peacetime, but about 150 recruited from Alabama, have been employed during the war period. The management states that many of the Negro employees have performed very satisfactorily. In general, however, these workers have but little seniority and they may be among the first employees released.

Reduction in hours would be considered before any lay-offs were made, but such a reduction is not obligatory under the terms of the union agreement. General company policy has been to distribute the available work, particularly because the plant is located in a relatively small community. Among employees who were equally qualified to do the work, lay-offs would be governed by departmental seniority. In cases of unusual merit, however, strict seniority arrangements would not be followed. Lay-offs would generally be made only among the group of workers no longer needed and no large number of transfers would occur. Employees would be given the opportunity to take jobs in other departments, however, if they were needed there.

The union would not be called in to participate in handling the lay-offs and no specific amount of notice is stipulated in the union agreement. Company policy, however, is to give employees as much notice as possible.

SUGGESTIONS FOR GOVERNMENT ACTION.

The management recommends that excess profit taxes be eliminated so that industry may be able to accumulate reserves with which to handle reconversion. Such reserves, it was felt, would make it possible for industry to maintain employment and inventories during this difficult period. The company also believes that supplies of materials in Goverument hands should be at a minimum when the war ends, and feels that it would help if duplication of purchases by various Government agencies were eliminated.

NATIONAL GYPSUM COMPANY
Buffalo, N. Y.

NATURE OF PRODUCT.

The National Gypsum Company has its executive offices and 2 plants in the Buffalo area. This report covers all three activities. The company mines gypsum and manufactures gypsum board, plaster, rock wool insulation, and similar products for a variety of essential uses. Gypsum board is used in the construction of farm buildings and hospitals and, earlier in the war, was used as an exterior board in the construction of cantonments. Rock wool is used to insulate the holds of ships and is employed as industrial insulation in numerous facilities, including synthetic rubber plants and tire plants. Finished plaster molds are used for casting machine parts. Some work is done on prime contract for Government agencies, but most work is on subcontract. The type of product manufactured has not changed essentially during the war period.

At the time of the interview in June, the plants had orders on hand which would keep them occupied through October. It was expected that, as soon as the course of the invasion was clear, restrictions on repairs of homes would be relaxed. Work on repairs will probably maintain the volume of production until restrictions on new residential construction are removed, at which time a substantial increase in output is anticipated.

RECONVERSION PLANS.

Since the company's present output is essentially the same as its peacetime production, the pre-war products and products developed since then will be promoted after the war. One new product, which was marketed to a small extent before the war, will be gypsum sheathing for exterior wall construction, to replace wood sheathing. The company believes experience with this product may be similar to that experienced with gypsum lath, which has largely replaced wood lath. The chief advantage of gypsum over wood for these uses is that it is noncombustible. Rock-wool insulation has been improved during the war and made waterproof. A new plaster mold produces finished parts which need no machining because of the smoothness of the mold.

The company maintains a research department with a staff of 30 at one of the plants, and it is believed that the products developed here during the war will have numerous peacetime applications. The marketing staff and contacts with dealers have been maintained during the war.

POST-WAR PRODUCTION.

Production after the war will probably be above present levels, possibly the same as in 1940. The company has earmarked a million dollars for post-war improvements and will doubtless allocate part of these funds for expansion of space and purchase of new equipment for the plants in the Buffalo area. Management officials have already examined specific equipment for the purpose of acquiring it. Production costs will be somewhat lower than in 1940.

A number of improvements made during the war period will contribute to greater post-war production efficiency. Developments reported include greater speed in mixing plaster, the use of new types of finish, and better control of drying as well as reduction of drying time.

EMPLOYMENT PROBLEMS.

The company anticipates that employment in all its facilities after the war will be about 30 percent above the present level. Employment in the 2 plants in the Buffalo area will probably increase in roughly the same proportion, or from 576 in May 1944 to about 800, the number employed in 1940. If production rose 50 percent above the 1940 level, employment in the Buffalo plants would be 25 percent higher than in 1940. This increase may not occur, however, until national reconversion is completed.

Skilled workers constitute only about one-sixth of the labor force; for the great bulk of jobs, training takes only about a week. Women constitute about one-third of the total number employed by the company in the Buffalo area. Most of these work in the executive offices and only 50 are employed in the two plants. Women did not work in the plants before the war and it is expected they will not be employed there after the war. No Negroes are employed. The company expects to be able to reemploy veterans without any difficulty and hopes that it will not be necessary to lay off any of its present employees.

If it became necessary to reduce employment, hours would be cut from 48 to 40 before lay-offs were made. Workers would be selected for dismissal on the basis of both merit and seniority. There would be no particular problems involved in transferring workers from job to job.

Some employees had the feeling their jobs were not contributing to the war effort and the company undertook an educational program. It used employee magazines, newspapers, lectures, and slides to demonstrate the part the company's products play in the war production program.

SUGGESTIONS FOR GOVERNMENT ACTION.

It was suggested that there be a uniform, gradual relaxation of Governmental restrictions. Management officials believe that the construction industry and allied industries can provide important post-war employment opportunities if restrictions are relaxed.

F. N. BURT COMPANY
Buffalo, N. Y.

NATURE OF PRODUCT.

This company manufactures paper boxes and containers, largely for the cosmetics, pharmaceutical, and tobacco industries. Some plastic containers have also been produced. The company's normal peacetime volume has been greatly expanded as a consequence of the wartime shortage of tin and other metals for packaging. The company takes a small amount of subcontract work for the manufacture of nitrocellulose flarecaps, pharmaceutical suture boxes, and similar items. In the past, there was a substantial volume of direct war business, including the production of machine-gun parts, but such work has been largely completed.

Production will probably continue at about the present rate--$600,000 per month--through the end of 1944. Thereafter, production volume will depend on the availability of tin for packaging. Some decline in output is expected as soon as tin is again available. The chief problem now, however, is the shortage of manpower rather than any lack of business. The plant does not pay as high wages as the war industries, and turnover is excessive.

RECONVERSION PLANS.

Plans for post-war production at the plant are in an advanced state. The company has already determined its post-war products and allocated the output to customers.. In general, products will be the same as pre-war items, but some of the war-emergency packages are expected to survive. There will also be production of some new items which will be made with standard types of equipment. No conversion time will be required for the change to peacetime production. It may take 3 months to get some extra dies which may be needed, but production could continue during this period.

POST-WAR PRODUCTION.

The management plans to purchase some additional equipment in post-war years, largely for replacement. It is estimated that an average of $100,000 per year will be spent for equipment for the next 3 years. More space than is now occupied is needed; if additional space were available, it would be obtained.

The management believes that the outlook for post-war production is extremely favorable. Because of good will built up during the war period, the company expects to expand its position in the industry. Moreover, as indicated above, it is believed that there will be a demand for some of the war-emergency packages after the war. It is anticipated that post-war production will be at least double the 1940 volume. Production costs will probably be about 15 percent higher than in 1940. More than two-thirds of this increase will represent additional labor cost; the remainder is attributable to increases in material costs, and expansion of staff for administrative functions such as personnel work.

There have been no radically new processes or types of equipment introduced during the war and it is not expected that output per man-hour will be higher than in 1940. As a matter of fact, since the quality of the labor force has declined, the statement was made that it would be optimistic to expect a return to 1940 efficiency. Nevertheless, the plant has always built its own special equipment and constantly attempts to improve it.

About 1 percent of the plant's work is sent out on subcontract. No work was subcontracted before the war and there will be no such work after the war. The company does not take subcontract work itself.

EMPLOYMENT PROBLEMS.

Post-war employment will probably be 1,000-1,200, a total lower than the May 1944 figure of 1,349, but nearly twice as great as the pre-war figure. About 20 percent of the estimated post-war employment is "overhead" labor, the remainder varying directly with production.

At present, about 75 percent of the plant's employees are women. Before the war, 65 percent were women, and the post-war proportion is expected to be 70 percent. Negroes have been employed at the plant only during the past year and now make up 3 or 4 percent of the work force.

The company has 105 former employees in the Armed Forces and has kept in close touch with them, sending letters and gifts of money. It is anticipated that there will be no conflict with the union over the question of granting these men absolute preference. In some cases, however, there are 6 or 7 men in the Armed Forces who held the same job at the plant. The company will try to select the best man for the job and find other work for the rest.

The company's agreement with an independent union provides that lay-offs be made in accordance with seniority by job classification within departments. There is some latitude for ability, however, and long service is necessary to establish seniority rights. Thus, those with less than 2 years' service have no seniority rights; for those with 2 to 5 years' service, there is a work-sharing arrangement; and only those with 5 years' service or more have full seniority rights. Management states that it would want to keep its experienced workers and find some place for them.

Some transfers may occur after the war, but the company does not expect downgrading. The need for transfers might arise because of lack of balance between various operations. Most transfers would be made at the same rate and no formal retraining would be required.

SUGGESTIONS FOR GOVERNMENT ACTION.

The company is very much concerned that prices on Government-owned manufacturing equipment be maintained at a reasonable level, so that it will not face "unfair competition" from companies who purchase such equipment. It was also suggested that manpower controls be removed after the war.

INTERNATIONAL PAPER COMPANY
Niagara Falls, N. Y.

NATURE OF PRODUCT.

This plant manufactures bond and tablet paper. Most of the product is shipped to converters, although 96 percent of the output is reported to be for Government use. The chief production problem has been the restriction on sulphite pulp; allocations have varied from quarter to quarter depending on supplies. Paper production, which is currently 196 tons per day, is expected to increase to 211 tons daily by the end of 1944.

Early in the war production program, the plant undertook subcontract machine-shop work, using old machinery previously used in the paper mill. When the height of this program was reached in 1942, two-thirds of the plant's force was engaged in the machine work and only one-third on paper production. During the past year, the volume of such work has declined steadily and, at the time of the interview, less than 1 percent of the plant's output was machine-shop work. The company had tried to get additional subcontract work through the regional office of the W.P.B., but no such work was available.

POST-WAR PRODUCTION.

Post-war products at this plant will be essentially the same as those now being manufactured, except that specifications will be higher than they have been during the war period. The sales force has been maintained and no special planning for peacetime production is necessary. Plant space will not be expanded, but new machinery and equipment will be purchased. It is expected the expenditures for new equipment during the first post-war year will be about $200,000.

The volume of production after the war will probably be about the same as in 1940. Production costs will probably be at the pre-war level or slightly less. Wage rates have increased 5 percent since 1940 and it is anticipated they will not change after the war.

The new equipment which the company will install will make possible more efficient operations. Large units will replace several smaller ones. Output per man-hour will be increased somewhat and, more important, expenditures for coal will be decreased, since the new units will have greater fuel efficiency.

It is unlikely that the plant will take subcontract work after the war.

EMPLOYMENT PROBLEMS.

Employment at this plant in May 1944 was 850 and the workweek varied from 48 to 60 hours. If a 40-hour week is adopted after the war, employment will rise to about 1,000, approximately the same number as were employed before the war.

Women now make up about a third of the work force. The proportion was considerably smaller in the pre-war period (less than 10 percent) and it is expected that after the war it will revert to the pre-war level. About 12 Negro workers have been employed during the war period. Some of these workers are taking the places of men in the Army and will be released after the war.

In all, about 350 former employees of the plant are now serving in the Armed Forces. No difficulty is anticipated in placing these men, nor is any conflict with the unions expected on the question of absolute preference for veterans.

The company has agreements with two A.F. of L. unions, the International Brotherhood of Paper Makers, which represents the experienced paper makers who comprise 20 to 25 percent of the work force, and the International Brotherhood of Pulp, Sulphite, and Paper Mill Workers, which represents the balance of the employees. The unions would be consulted by management if lay-offs were necessary, but the agreements do not specify the procedures to be followed. Hours of work would probably be reduced before lay-offs were made. Both ability and seniority would be considered by management in selecting workers for lay-offs. Reduction in force would involve transfers of workers from one job to another, but no serious difficulties would be created. About 50 percent of the jobs would require some retraining, which would be given on the job. For work on a paper machine, the training time required would be about 2 months.

SUGGESTIONS FOR GOVERNMENT ACTION.

The management believes that Government restrictions on materials, and manpower should be removed as rapidly as possible. It is assumed, however, that these restrictions cannot be lifted all at once.

REMINGTON RAND, INC.
Tonawanda, N. Y.

WAR PRODUCTION.

Before the war this plant manufactured kardex files and filing cabinets. In May 1944, however, only 3.2 percent of total production was made up of civilian items, while most of the plant capacity was devoted to war production. The following table shows the distribution of total production in May 1944:

WAR ITEMS	PERCENT OF TOTAL PRODUCTION	
Stabilizers for C-46 aircraft. . . .	72.0	
Rudders for P-47 aircraft.	15.0	
Ribs for C-46 aircraft	5.5	
Enclosing cases (for radar, radio, and broadcast units).	1.8	
Miscellaneous war work and parts . .	2.5	
Total war items		96.8
Civilian Items		
Filing cabinets.		3.2
Total.		100.0

Commitments on war contracts for the manufacture of stabilizers run to the end of 1945 and production of this item will probably continue for the duration of the war. The contract for rudders extends to the end of 1944, but a verbal promise has been given the company that further orders will be forthcoming. It is evident that the greatest part of the plant capacity will be engaged in war production throughout 1944 and possibly through 1945, unless contracts are cut back.

Production schedules will increase until August 1944, largely as a result of an expansion of the C-46 stabilizer program. After August, production is expected to remain stable. The production schedule for stabilizers for May was 80 units; for June, 124; for July, 144; and for August and succeeding months, 150 pieces. Rudders for the P-47 are produced at the rate of 250 per month. Ribs for the C-46 airplane are manufactured at the rate of 100 sets per month (12 ribs per set).

RECONVERSION PLANS.

Plans for the production of civilian products are in the developmental stage. The manufacture of filing cabinets will be continued. One pre-war item, kardex, will not be produced after the war, but a new item, steel desks, will be substituted. The management has been in contact with the Aluminum Company of America concerning the possibility of manufacturing aluminum products, such as cases for bottles, and design work has already been started on these products.

Production of civilian goods awaits the release of steel. The company is taking some steps to obtain steel for civilian items and will start production as soon as possible. In the meantime, experimental work is continuing on new products.

There are two other obstacles to reconversion to civilian production. The lack of tooling capacity is of prime importance, and the shortage of manpower for civilian production is very severe. All available men now on the pay roll are employed on war work.

The time required for conversion from war to peace production varies with the product. The plant could manufacture filing cabinets within 3 weeks after the termination of war contracts, but production of this item would be insufficient to keep the present labor force intact. If the war were to end suddenly, or if serious cutbacks were to occur, it would take 6 months before a complete line of tools could be obtained for the production of desks and other items. If the regular work force is to be maintained throughout the conversion period, the plant must have approval of the War Production Board to obtain special welding equipment and several punch presses as well as assistance in obtaining materials, especially steel.

Civilian production can be started after any decrease in war production, provided that materials are released. However, the plant management expressed the hope that reduction in war production would be gradual, since such a procedure would necessitate the least readjustment in employment and would contribute to a smoother transition from war to peace.

POST-WAR PRODUCTION.

No needs for additional space for the resumption of civilian production are anticipated. However, the management stated there was an immediate need for one building to be used as a receiving department for steel and other materials. The W.P.B. recently rejected the company's request for this building, on the grounds that insufficient saving in manpower would result.

The level of post-war production after full conversion is difficult to estimate, since it depends on Government policy regarding disposal of its excess office equipment as well as on the disposition of D.P.C. office equipment. Reasonable expectations, however, place production at the 1940 level.

Post-war costs of production are expected to be higher than pre-war costs, primarily because of higher wage rates; material costs are uncertain. However, savings in labor cost will result from several wartime technological changes which will increase efficiency. For example, new methods of making cheap tools have been developed. Templates are used for war work in preference to drawings used before the war. Stack drilling has taken the place of the older method of drilling identical pieces separately.

Several production methods have been learned from the aircraft industry. Notching of pieces has been replaced by joggling, a method that forces the metal back into the piece, eliminating the use of dies for cutting. In addition, the need for dies has been further decreased by the use of rubber forming. By this method a sheet to be formed is placed on a die and a rubber block is forced down on the metal, forming it to the shape of the die below. Previously an upper metal die was used in place of the rubber block. All these innovations should prove valuable aids to production after the war.

The present percentage of work subcontracted is very small, being confined entirely to some woodworking. The plant is primarily a subcontractor for war items and, after the war, plans to use no subcontractors whatsoever.

EMPLOYMENT PROBLEMS.

Employment at this plant increased from 667 in May 1940 to 820 in May 1944. The expansion was brought about largely by increasing the number of women employed; in May 1940, there were 112 women workers, in May 1944, 408.

There will be a decrease in employment after the war in this plant. The severity of the lay-off, however, will depend on the manner in which war contracts are terminated and on the speed with which the plant can get tools and materials for civilian production. The management estimates that the labor force would be cut to 150 if contracts were terminated at present without notice. If contract termination is gradual, however, the work force would be cut to about one-half present levels, with a gradual increase after retooling is completed.

Employment does not vary in direct proportion to production in this plant. At least two factors account for this: First the indirect labor force now equals 18 percent of the total and will constitute a greater proportion of the total after the war. Second, a substantial increase in production would permit more effective utilization of equipment. For these reasons, it has been estimated that a 100 percent increase in production would necessitate only a 60 percent increase in employment.

This plant expects to employ very few women after the war. Women are good workers, but their high asbsenteeism rates and the special services required (separate facilities, counsellors, etc.) make their retention impractical, in the opinion of the management.

Veterans will be re-employed according to provisions of the law. The plant can use those who return now, and after the war will make every effort to use disabled veterans as well as others. If there were a sudden cutback at the time considerable numbers of veterans returned, however, there might be some difficulty, since some men with higher seniority would have to be terminated.

The management has noticed an increasing tendency of workers, particularly women, to quit work. The optimistic war news was given as one reason, but many women were leaving during the summer school vacation because there were insufficient facilities for child care. The plant offered to pick up the children in a station wagon and take them to kindergarten but this plan had not met with much success at the time of the interview. Older women have left because they were fatigued and wanted to take the summer off. According to the management, turnover among the men has changed but little since most men have high seniority.

SUGGESTIONS FOR GOVERNMENT ACTION.

The management would like Government aid in obtaining material, particularly steel, as well as tools, punch presses, and special welding equipment. In addition the company is interested in purchasing most of the D.P.C. equipment it is now using; this equipment consists of pneumatic squeezers, a heat treating oven, electric drills, and a routing machine. The remainder of the D.P.C. equipment in the plant will not create a space problem provided it is removed in a reasonable time.

The major complaint of the plant management is that numerous Government officials appear to have no final authority to make decisions. For example, this company relates that it obtained a fixed price contract to make a certain item for the shipbuilding program. The Navy was to supply the tools under the terms of the contract and the company expected no difficulties, since the ship was of a type that had been made for 15 years. When the tools arrived, however, the plant was unable to use them; consequently the facilities were reengineered and new fixtures and tools were made. This resulted in a $50,000 loss on the contract, a loss which the Navy attempted to rectify by awarding a new contract at a higher fixed price. While engaged in making parts under the second contract the company received a cancelation order without advance notice, the Navy having decided to make the item itself. The plant management feels it should be reimbursed and is still trying to collect.

GENERAL INFORMATION ON CUTBACKS.

This plant has had 2 cutbacks since the beginning of the war. The Navy contract referred to above was canceled without advance notice, but there were no lay-offs. Transfers were made, affecting 65 workers, 45 in the assembly department and 20 in the press room. The other cutback involved a slight reduction in the production schedule for P-47 rudders. This reduction righted itself and, although 20 persons were laid off, the company succeeded in rehiring most of them within 3 weeks. The total force working on this item decreased from 230 to 200 and then increased to 250 after the readjustment.

The cutbacks had some adverse affect on morale. The workers apparently believed that the plant should have been awarded the Army-Navy "E", since the qualifications for this award had been met in the opinion of the management.

Plans are now under way to extend the incentive plan to the entire plant. At present only workers in the press room are paid piece rates. The rest of the plant now receives an arbitrary 33 percent bonus over base rates in accordance with an average of past plant production. The workers have now attained the efficiency commensurate with the bonus and the management wishes to add further incentives.

EMPLOYMENT ADJUSTMENTS.

Scheduled hours are now 53½ per week for the day shift and 50 for the smaller night shift; the cutbacks necessitated no change in hours.

Lay-offs were made on the basis of plant-wide seniority as specified in the contract with the United Electrical, Radio, and Machine Workers, C.I.O. Promotions, transfers, and rehiring are handled similarly, with the provision that the employee under consideration be qualified for the work. Women receive the same seniority rights as men. Union shop stewards, however, are automatically placed among the upper 40 percent on the seniority list for the duration of their terms as stewards.

The company made all transfers at the same skill and wage levels. No training problem was involved and none is expected until after the war. When the new products go into production, new operating skills will be required and there will be some change in job duties and wage rates. The amount of supervision required is expected to decrease since the proportion of women workers will be lower.

HEWITT RUBBER CORPORATION
Buffalo, N. Y.

WAR PRODUCTION.

This company now manufactures self-sealing gasoline tanks and various types of industrial rubber products, including transmission belts, hose, packings, and molded rubber goods. About 85 percent of the total output is considered direct war work and the other 15 percent indirect war production. Of the direct war production, 65 to 70 percent is on subcontract and the remainder on prime contract with the Government services. A substantial part of the plant's activity is the production of industrial goods for steel mills, chemicals plants, aircraft plants, and aluminum plants. In general, the types of items now produced are very similar to those produced in peacetime. When restrictions were imposed on the uses of rubber, very few items produced by the plant were classified "unessential." Perhaps the most important innovation during the war has been the use of synthetic rubber.

Orders are not generally booked very far in advance and no definite statement of prospective production schedules can be made. The plant has some commitments 9 months ahead, however, and the management expects production to continue at about the present rate. No particular difficulty was reported in getting contracts. The management believes it should produce items needed in the war production program to the best of its ability, even though, from the viewpoint of post-war business, it would prefer to take more civilian business. There is some feeling that competitors are not taking their full share of war work and are trying to get an edge on post-war markets.

RECONVERSION PLANS.

The management has paid close attention to developments in the industry and has considered the question of post-war production. No specific, detailed work on product development has been done, however, since all rubber is still under restriction. In general, products will be similar to those produced in the pre-war period. Sales methods and distribution methods will also remain about the same as in pre-war years. Experience has been gained in processing synthetic rubber and this knowledge will be of benefit in the post-war period.

No technical problems of any consequence will be involved in reconversion. The equipment used for military items is the same as that used for peacetime production; the types of products to be made will be very much the same as those produced before the war. Civilian production could begin as soon as orders were available and restrictions on the use of rubber were lifted. Eventually, when crude rubber is again available, a number of minor mechanical changes in the plant will be necessary. Handling crude is easier than handling synthetic, however, and the substitution will simplify rather than complicate production problems. Any plant capacity or manpower made available by a reduction in the demand for military goods could be used to produce civilian items.

POST-WAR PRODUCTION.

The management does not contemplate acquiring additional plant space or equipment to produce civilian goods. The plant was enlarged by means of the company's own financing to take care of war business and the

capacity now available will be adequate for post-war requirements.

A fairly good volume of business is expected for some time to come. During the reconversion period, many plants will require replacements for rubber equipment which has been used 24 hours a day for war production. Eventually, after general reconversion is completed, output may suffer, but there may be no decline for a few years. Much will depend on general business conditions. At best, however, there will be a sharp drop from the war production levels. The management estimates that post-war production may be about the same as in 1940, when employment was about 30 percent of the wartime total.

Production costs have increased greatly during the war and, in management's opinion, will be at least 25 percent higher after the war than in 1940. Wage rates have increased 25 to 30 percent and prices of materials have also advanced substantially. Of course, part of the rise in costs is attributable to abnormal wartime circumstances--the early difficulty experienced in processing synthetic rubber, the employment of inexperienced labor, and other factors. If more crude rubber becomes available, production costs will decline somewhat.

There have been no significant changes in technology during the war period which will permit increased efficiency of operations compared with pre-war conditions. The industry operates with essentially the same types of equipment used many years ago and a considerable amount of hand labor is necessary. Minor changes in techniques are made constantly, but their effect on efficiency is considered negligible.

The company would consider taking subcontracting for the production of consumer goods after the war if it could get into some field which looked promising. The equipment the plant has would permit this type of work, but no definite plans have been made for such activity.

EMPLOYMENT PROBLEMS.

It is estimated that post-war employment will be about 600, approximately the same as in 1940, compared with 2,100 in May 1944. Women have been placed in jobs which were traditionally male and now constitute about 52 percent of the employment total; in 1939, only 11 percent of the employees were women. The proportion of women will probably decline to pre-war levels as veterans return and as women leave the labor force. About 10 percent of the plant's employees are Negroes, most of whom have been hired during the war period.

Some 650 employees of the company are in the Armed Forces, a number greater than the plant's expected total employment after the war. If most of these apply for their old jobs, employees hired during the war, including most of the women and the Negro employees, will be largely displaced.

If production were curtailed, hours would be reduced before lay-offs were made, in accordance with the agreement with the United Rubber Workers of America, C.I.O. Employees would be selected for lay-off on the basis of departmental seniority. Employees not needed in their departments would be placed in a pool and selected for any openings in other departments in accordance with plant-wide seniority. An employee in the plant-wide pool could replace the employee holding the lowest rated job with least seniority. The union agreement calls for 3 days' notice of lay-offs to employees with seniority rights, i.e. those with 6 months' or more service.

Some transfers and retraining would be necessary in the event of a reduction in force; but the problem would not be difficult. Most transfers would occur within departments and, in addition, some employees have worked in many departments. Such retraining as would be required would be given on the job.

SUGGESTIONS FOR GOVERNMENT ACTION.

The most important recommendation for Government action to aid in reconversion was speed of contract settlement. It was suggested that machinery be set up so that settlements could be made within 30 days. Since a large part of the company's business is on subcontract, it is particularly concerned that subcontractors receive as quick action as prime contractors.

SPENCER LENS COMPANY.
Buffalo, N. Y.

WAR PRODUCTION.

Practically all work done at this plant is on direct contract with services. In peacetime, the plant manufactured scientific and optical instruments, but at present it also produces fire-control equipment.

Some contracts run into 1945 and a few extend to 1946. The management expects that present contracts will be extended when they expire and that production will continue at the present rate for about a year. Shipments are valued at about 2 million dollars per quarter. The management representative stated that the company would prefer to resume some civilian production, but there is no objection to doing a certain percentage of Government work.

RECONVERSION PLANS.

Although no part of the staff is engaged full time in working out details for the resumption of civilian production, some plans have been made. The plant has completed survey work on the selection of products, and design work is being done for some items which were not made before the war. A research and development staff of 60-75 people, now engaged in war production, does some work on post-war products. No specific marketing plans have been made, but the company will probably revert to its pre-war distributing organization. It is anticipated that civilian production will not be resumed until the war ends.

The plant, would be ready to produce civilian goods without delay, since it faces no reconversion problem. It would take about 3 months to move out Government-owned equipment, but production could continue during that period. Acquisition of materials would present no difficulty.

POST WAR PRODUCTION.

The company may want to buy some of the Government-owned equipment which has been installed during the war. Some large equipment for the manufacture of fire-control instruments will not be needed, but most of the other Government-owned equipment can be used for civilian production. No expansion of plant space is contemplated.

After the war, production will probably be 33-40 percent of the 1940 volume. By 1940, the plant had already expanded substantially to work on Lend-Lease orders: employment doubled between 1939 and 1940.

Production costs will depend almost entirely on labor cost. No important changes in efficiency are anticipated, since operations cannot be organized on an assembly-line basis, nor can new materials be used. One possible improvement, of minor importance, is the increased use of aluminum.

Only about one percent of the company's work is subcontracted and even this small amount will be discontinued after the war. The company also takes a small amount of subcontracted work and would take such work after the war if it were available.

EMPLOYMENT PROBLEMS.

It is expected that employment after the war will be sharply reduced from the May 1944 total of 2,000; in 1939, only 440 workers were employed. "Overhead" labor is fairly important: if production were 25 percent of the 1940 level, employment would be 35 to 50 percent of the 1940 total. The types of skills needed for civilian work are the same as those required for war work, and management does not anticipate that there will be any retraining problem. Most occupations are skilled.

Women now make up nearly 40 percent of the company's work force. There may be some decline in the proportion of women in the post-war period, but the proportion will probably remain higher than in the pre-war period, perhaps 15 or 20 percent. Former employees now in the armed forces number 600, a figure as great as the probable post-war employment total. The company will attempt to re-employ these workers if possible, and does not anticipate any difficulties over the question of granting veterans absolute preference.

When operating schedules are reduced, hours will probably be cut. Employees would be laid off on the basis of both seniority and merit. The two A.F. of L. unions would be called in to participate in and review the decisions made, prior to the lay-offs. Since most occupations are highly specialized, only a limited number of transfers would be made and these would not create any great retraining problem. Workers who had been advanced to the supervisory staff during the war might, however, be put back on the bench.

Thus far, workers have not left the plant to enter civilian work, but rather to seek employment at companies which have longer hours and higher wage rates--chiefly Curtiss-Wright and Bell Aircraft.

SUGGESTIONS FOR GOVERNMENT ACTION.

The management suggests that reconversion would be eased if the Government would do advance planning on its requirements and maintain its source of supply for the types of equipment produced. The company apparently expects to continue to sell to the Government after the war, although it had no Government orders before the war. The management also states that, after a decision is made on the disposition of Government-owned equipment, the equipment should be moved out quickly and settlement made without delay.

classed in
WPC I late 42 & early 43
"Bflo Plan" or A list those with
direct procurement prime contracts.
Had workload sched. & WSB
first to them & ~~no other~~
~~plants~~ referals & all them Ills. E

In-migrant -

Occup -

Vet's funds -

Age

4560 Negro -

I

Es 270 –

Last half 43 first 44 (war).

Women abt 1/3 in plants

rept (194 incl niagara
in Nov 43 Rpt)

In Nov 44 Women pc decl 29.3

II 10 major Bflo plants

each with Over 1,000 women,

Women 40.6 pc –

Largest: Bell 47.0 Women

Motor 51.5 "

Combined 47.9

Never "left" vds Extra stress to women

Back to 2 pers-married While having

Marriage (often older) Needs/pressures

See XIII

Buffalo

Percent of women expecting to continue work who—

	Support Self	Support Others	Are Sole Family Earners
Total			14
Single			10
Mar, Husb. Pres			4
Mar, Husb. Serve			17
Mar, Husb. Ab. Not Service			42
Wid. Div.			

Same by age

These were published Repb. per MLD.

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

Excerpts from: "THE BUFFALO PLAN"--AN EXAMPLE OF MANPOWER UTILIZATION, by Paul R. Smith, Manager, War Production Board, Buffalo, N.Y. In Advanced Management, January-March 1944, pp. 17 - 19.

* * *

The Niagara Frontier comprises Erie and Niagara Counties which include the two major cities of Buffalo and Niagara Falls. Buffalo is the second largest city in New York State. It is the largest port on the Great Lakes in value of tonnage handled and is the world's greatest maritime grain distributing center. It is served by twelve railroads, is the western terminus of The New York State Barge Canal and ranks as one of the country's greatest industrial and manufacturing centers. The industrial activities of Erie and Niagara counties before 1940 were the all-important chemical industry in Niagara Falls, steel mills, brass rolling mills, blast furnaces, milling and grain elevators and numerous old established manufacturers of machine tools, marine motors, foundries, and sundry so-called heavy industries.

The very nature of these plants and industries with their wide diversification has been responsible for the healthy economic growth of the Niagara Frontier. Inasmuch as the activities of this area were not confined to any one industry, it escaped some of the unfortunate experiences of other areas during the depression years. These companies and industries are so basic that undoubtedly under war conditions their output would be in such demand as to tax to the limit our available manpower.

Since the late 30's this area has witnessed the expansion of production facilities of two enterprising and thriving aircraft companies, namely, Curtiss-Wright and Bell Aircraft. Also, the entrance of an entirely new plant and industry in the Buffalo Arms Corporation. In addition to the mushroom growth of these three companies, there have sprung up smaller subcontracting companies for these prime contractors. Thus, we have seen superimposed upon our basic, and for the most part, heavy industries, these so-called glamor plants requiring a substantial number of employees.

The population of this area is approximately one million people of which, prior to 1940, 329,570 were engaged as workers in our plants. Today, with the population of these two counties remaining still at approximately one million, approximately 411,476 are employed of which number close to 90,000 are employed in not more than a half dozen of these so-called glamor plants. . .

In the latter part of 1942 the industrialists in submitting their 270 reports to the United States Employment Service indicated an estimated need for additional manpower for the first three months of 1943 in the amount of some 70,000. Taking these reports at their face value, the War Manpower Commission declared Erie and Niagara counties as being a No. 1 critical area.

In October, 1942, a War Manpower area office was established and shortly thereafter the area committee was appointed by the Regional Manpower Director. This committee consists of four representatives of industry or management and four representatives of labor, two each from CIO and AFL. This committee serves only in an advisory capacity and is set up for the purpose of studying the manpower problems and making recommendations to the area manpower director

. . . A controlled referral plan was developed and submitted in April, 1942, to the Regional Manpower Director for approval.

Just prior to the proposed effective date of this plan the Office of Economic Stabilization issued its hold-the-line order which necessitated certain revisions in the proposed referral plan. After considerable study the Regional Manpower Director promulgated the controlled referral plan to become effective on June 14, 1943.

The principal feature of the plan, as promulgated, required all males to be referred to employers through the United States Employment Service. Female workers were not affected under this plan.

At the time the plan became operative, June 14, there were approximately 1300 males cleared through the U.S. Employment Service each day. As the public schools were closing, about 500 of this 1300 were high school boys looking for summer work. The balance, for the most part were workers desiring to change from one essential job to another or workers coming from less essential industries--and a few in-migrant workers.

The plan provides for a labor requirements committee whose duty it is to place essential companies on a priority list indicating to The U.S. Employment Service the plants in need of male labor. This committee is composed of a representative of the Army, Navy, War Manpower Commission and War Production Board. The chairman, Mr. Edward J. Barcalo, is a highly respected, retired industrialist. The chairman had no vote. We also have sitting in, as advisors, representatives of The U.S. Employment Service, Office of Defense Transportation and Selective Service.

At that time the common talk among people in all walks of activity and interests was to the effect that these newer, light industry plants were overmanned, thus penalizing the area as a whole by bringing about a condition whereby the heavy industries were steadily falling behind in meeting their production schedules.

The Labor Requirements Committee immediately set about to develop a plan whereby available manpower would be referred to the heavy industries which, for the most part, were chemical plants, heavy machine shops, steel mills and foundries. To this end a general policy was adopted whereby these lighter plants were not placed on our labor priority list and the most important of the heavy plants, where information indicated the most urgent need for manpower existed, were immediately placed on the list.

* * * * *

Within a short time we discovered that there were certain manpower needs by industries and companies that did not have prime contracts from Procurement Agencies and yet were essential as subcontractors or for our civilian economy, such as small machine shops, steel warehouses, storage warehouses, motor transportation, food processors, scrap yards, etc. We then broke our priority list into two groups, namely, "A" and "B" lists.

On the "A" list we placed those plants that had direct procurement prime contracts, which plants were behind in production schedules. A prime contractor manufacturing a most essential end item which was found to be meeting production schedules was not given consideration nor was it placed on our "A" list. On the "B" list we placed those companies operating in the field of subcontractors or essential civilian activities.

Instructions were given to The United States Employment Service to make first referrals to plants on the "A" list and, when the requirements of this list had been fulfilled, to refer additional workers to plants on the "B" list, bearing in mind that the worker should be referred to a plant where his highest skill could be utilized.

While the plan called for all males to be referred through the U.S. Employment Service, certain traditional hiring halls were approved which could send workers to plants with whom they have contractual relations without clearing through The U.S. Employment Service.

All plants placed on a priority list were permitted to recruit outside of the Erie Niagara Counties area. The attempts made for out-of-area recruitment have not proven successful. . .

. . . The lighter industries, realizing their inability to secure referrals, have produced remarkable results by the further recruitment of women and by better utilization of manpower which they have.

While this plan has not reduced the turnover as anticipated, we find that the rate of turnover has not increased. From June 14, when the plan became operative, through November 13, there have been a total of 69,282 referrals by The United States Employment Service and during that same period 15,848 were referred back to their present employer and not given releases.

* * * * *

Kentucky

Kentucky

2-5-44 It is hoped to register 15,000 women Feb. 3-4 in Louisville, to meet needs of first half of 1944. One plant alone has asked for 2,700 women. (L. Times. Jan. 17, 1944)

Kentucky - Tools

2-26-44 Archer and Smith Ltd., Lexington, make tools used in airplane manufacture. The staff is composed almost entirely of women - except for foremen, maintenance crews and so on. The firm has proved women can be trained for precision work. After the war the firm plans to make tools for makers of consumer goods and hope the women workers will still be with them. (Louisville Courier Journal, Feb. 17, 1944)

Kentucky

WMC, Louisville, reports that 5,180 women were placed here in August and that about 3,000 more are needed. The Womanpower Committee of WMC suggests that a survey be made of women workers to determine which will need to keep their jobs after the war. It also recommends that such women be aided by adequate training, be given equal pay for equal work, and be advanced according to ability. (Louisville Times, Sept. 13, 1944)

5-23-44

Kentucky

To meet manpower needs in the Louisville area, WMC will direct bars, taverns, night clubs and other entertainment places to replace all men with women as soon as possible. 1,000 men a month must be called into war plants until June. Other steps planned are:

Cut 3,000 men workers off production lines of 425 plants on the essential list.

Check all plants not now on 48-hour week with the view to extending hours.

Study putting all women workers on ceiling and priority referral basis.

An increase in the 70-cent-an-hour rate for common labor as an inducement to draw workers to the Indiana Ordnance is being sought. (Louisville Courier-Journal, January 17, 1945.)

Kentucky

2-3-45

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Cut 3,000 men workers off production lines of 425 plants on the essential list.

Check all plants not now on 48-hour week with the view to extending hours.

Study putting all women workers on ceiling and priority referral basis.

An increase in the 70-cent-an-hour rate for common labor as an inducement to draw workers to the Indiana Ordnance is being sought. (Louisville Courier-Journal, January 17, 1945.)

U. S. Department of Labor
WOMEN'S BUREAU
Washington

July 26, 1946

RECENT TRENDS AFFECTING THE EMPLOYMENT OF WOMEN IN AUTOMOBILE MANUFACTURING IN DETROIT

With the end of the war, heavy layoffs took place in the automobile industry in August and early September 1945. In October the first sharp employment rise since November 1943 occurred. Labor unrest and material shortages retarded any marked employment expansion in the following months.

During this period the auto industry used women almost entirely on office and other non-production jobs, except for light assembly work in parts plants. In reconverting, women production workers in many cases were transferred to other types of work. The proportion of women employed on production in the industry throughout the country had dropped from an average of over 25 percent in 1944 to 18 percent in August 1945, and 10 percent in September 1945, subsequently declining gradually to 7.5 percent by April 1946:

Date	Estimated number of women production workers	Percent of total production workers	Date	Estimated number of women production workers	Percent of total production workers
Oct. 1939	29,500	6.6	July 1945	114,200	19.0
			Aug.	97,900	17.6
Average			Sept.	44,300	10.4
1944	180,800	24.7	Oct.	47,800	10.4
			Nov.	53,600	10.2
Jan. 1945	167,300	23.5	Dec.	34,500	8.9
Feb.	161,400	22.7			
Mar.	158,900	22.7	Jan. 1946	35,400	8.5
Apr.	154,800	22.4	Feb.	33,600	8.1
May	141,000	21.2	Mar.	36,500	8.2
June	128,400	20.0	Apr.	46,800	7.5

In February 1946, the U.S.E.S. reported concerning the automobile industry that "there is little evidence of women being displaced by returning veterans, since women have been used since V-J Day almost entirely on non-production jobs."

It is apparent, then, that the automobile industry returned to a considerable degree to the pre-war pattern of women's employment in the industry immediately following the end of the war.

In March 1946, it was reported that the automotive industry planned to expand rapidly by midsummer. Four-fifths of new job openings were for men production workers (semi-skilled and unskilled) with a large proportion of them reserved for veterans. In Michigan particularly, shortages had already developed in March for experienced workers in engineering and professional, tool and die and machinist occupations. Other shortages mentioned in April included model makers, pipe fitters, electricians, pattern makers and core makers.

In spite of increasing shortages there are still surplus workers in the area. Women, along with older and very young men, non-whites and the physically handicapped have formed the hard-core of a considerable number of unemployed in the Detroit auto industry. Employers in the auto industry prefer white males, between 20 and 25, weighing over 150 pounds and in good physical condition. The increasing shortages of experienced workers with these requirements are leading to some relaxation of employer specifications. Nevertheless, according to Employment Service Analysts, it is not anticipated that these growing shortages will provide opportunities for women to any great extent, in view of the traditional employment pattern in the industry.

From April to early fall about 100,000 new jobs are anticipated in the auto industry, about 60,000 of them in the Detroit area. Men are wanted for 90 percent of the jobs. Though the number of women is expected to exceed pre-war levels considerably, the greater influx of men will keep the proportions of women small.

Sources; U.S.E.S. Labor Market Information. Area Series and Industry Series; U. S. Bureau of Labor Statistics, Release, July 8, 1946; and information from U.S.E.S. staff.

JMH/vh

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WEP Rich 2/26/46

(5)

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON 25

Typed 2-18-46

February 9, 1946
4317 Glendale
Detroit 4, Michigan

To: Miss Frieda Miller
Director

From: Kathleen Lowrie
Regional Representative

Attention: Larrabee, Nason
Williams, Robinson
Pidgeon

Re: Labor Market Reports from U.S.E.S. Offices in Several Michigan Cities

Dear Miss Miller:

In accordance with your advice of recent date that Miss Ziegler had secured an interesting U.S.E.S. Labor Market Report in Chicago, I visited Mr. Tracey, Michigan Director of Reports and Statistics, and discussed at more length this material which he had previously told me of in December.

I reported at that time that he was planning to decentralize the Labor Market Reports and had worked out a formula by which each office was to secure and mimeograph material monthly. This material will not be assembled at the state level. It will continue to be a series of local reports in the interest of building further app eciation on the part of management of a central service on personnel and future needs in terms of men and women. You will notice there is an original report on employment during war and reconversion, to management, labor, and the community. Then each month the statistical page of this report is to be continued with any new developments written up in an accompanying statement. Mr. Tracey gave me a copy of all such reports which have come into his office.

In my trips to cities outstate I have in each case visited the local office and discussed developments and our standards and secured copies of their reports and have been put on their mailing list so they will come to me sooner than if I waited for the state office.

Sincerely,

Kathleen Lowrie

Dear Miss Pidgeon: If you could have someone chart numbers employed by month by cities by sex, & send me a copy, I would add to it each month on my chart, & send you the releases from the cities. The reason for this request is that I can only get one copy, & I'd like to send it in expeditiously to you. But I shd have the status by cities at my finger tips here. Yours K. L.

Michigan

7-20-42

Women will be asked to register for work in war production plants in Detroit in about a month. 80,000 are asked for at first. Air raid wardens will make the canvas, and the Employment Service will classify the cards. (Business Week, July 11, 1942.)

Michigan - Registration

9-9-42

Of 700,000 questionnaires sent out to Detroit women, 255,000 have been returned to date. More than 50 percent were available for work without child care. About 10 percent more would work if child care were available. Some 14 percent with no factory experience would take factory work. Nearly 19 percent had factory experience but would probably require training. Only 10 percent asked for clerical work. (Detroit News, August 30, 1942)

Michigan - Training of Women

9-24-42

Reporting in Detroit the director of vocational training for war production workers stated that of 4,200 persons referred by the U. S. Employment Service and the WPA for training, 62 percent were women. Of more than 5,000 war factory workers taking training to upgrade in skills, 5½ percent were women. (Detroit News, September 4, 1942.)

Michigan - Registration.

9-24-42

Analysis of 158,531 registration cards out of 250,000 returned in the Detroit survey of women for war work indicated that about 116,500 would be willing to enter war factories. A total of 90,600 would not require care for children outside their homes, 22,300 of them having some experience in factory work, 53,900 having no experience but expressing interest in factory work, and 14,300 having neither interest nor experience in factory work. (New York Times, September 13, 1942.)

Michigan

3,000 Jackson women will be needed in war plants within a year according to Employment Service. Estimated demands for women in other cities were: Flint, 11,000; Bay City - ~~Saginaw~~, 8,600; Muskegon, 4,500; Grand Rapids, 4,000; Pontiac, 6,500; Lansing, 7,000; Battle Creek, 4,000; Kalamazoo, 1,000. (Jackson, Citizen-Patriot, Oct. 18, 1942.)

Michigan

More than 6,000 women work in war plants in Grand Rapids.

Michigan

2-22-43

Nearly 100,000 more women will be needed in Detroit factories by end of year. About half must be women not now employed. (N.Y.Times, Feb. 12, 1943.)

Michigan

3-30-43

Women to train as inspectors in Detroit and State war plants are needed at once according to Civil Service. (D. Times, March 21, 1943.)

Michigan

4-13-43

In the Detroit area in February 185 war plants employed 553,000 workers, 107,200 women. In June 1942, these plants employed only 37,000 women. (N.Y. Journal of Commerce, Apr. 5, 1943.)

Michigan - Willow Run

5-8-43

Because of shortage of workers certain machines and manufacturing operations will be removed from the Willow Run plant and placed in such other Ford plants as can handle them. Willow Run will become largely an assembly line. (Savannah News, May 3, 1943.)

Michigan

5-24-43

6,000 more workers are needed in Greater Muskegon in the next 6 months according to W.M.C. and wider use of women in inevitable. (M. Chronicle, May 15, 1943.)

Michigan

9-25-43

W.M.C. representatives in Detroit, say war industry in the area needs 82,000 and women will have to fill 72,000 of these jobs because men are not available. For the other 10,000 jobs industry wants only men. (N. Y. Times, Sept. 21, 1943.)

Michigan

9-11-43

Women are now the chief source of labor supply in Michigan manufacturing plants. The ratio of women to all workers in manufacturing increased between June and July from 20.2 to 21.2 percent. Industries in which women constitute 40 percent or more of total were: electrical machinery - 56.1; radios - 54.4 wire-work - 41.6; hardware and stamped ware - 42.3; jewelry - 56.9; miscellaneous wood products - 43.5; confectionery - 80.7; ice cream - 43.1; pharmaceuticals and cosmetics - 48.3; textiles and textile products - range by individual industry from 46.6 to 90.3; leather products - 62.8. (Mich. Labor & Ind., August, 1943)

Michigan

1-8-44

The Saginaw area will need 1,700 workers soon to meet production schedules. These will have to be women, and other women will be needed to replace men. About 7,800 women are now employed. (S. News, Dec. 7, 1943)

Michigan

2-19-44

Manpower authorities in Detroit report a movement of women back into the home. Cut backs cause larger disemployment of women because men have higher seniority. Where seniority rules are not in effect, companies tend to lay-off more women than men for "social reasons." Many women have shown a wish to return home at the first sign that they were not needed. (N.Y. Journal of Commerce, Feb. 5, 1944.)

Michigan

3-4-44 U.S.E.S. says there are 550 jobs open for women in Grand Rapids, chiefly in war plants. Already 35 percent of workers in industry here are women. (G.R. Herald, Feb. 12, 1944)

Michigan - Strike

3-4-44

Women inspectors and assemblers at the Bower Roller Bearing Co., Detroit, are still on strike. The strike began when 500 women rebelled against a W.L.B. decision on a wage increase. (Milwaukee Journal, Feb. 16, 1944)

Michigan

4-1-44

A 10 cent an hour increase has been ordered by regional W.L.B. for women at the Saginaw Steering Gear Division of General Motors, Grand Rapids. This makes women's rates 94, 96½ and 99 cents an hour. Women constitute the majority of some 1,374 workers. They operate light machines. (United Automobile Worker, March 1, 1944)

Texas - Michigan

A clearance order asked Texas for 1,000 trainees, men and women, 18 or older, to be recruited for aircraft assembly jobs at the Ford Willow Run plant. Details of the work done by four U.S.E.S. offices in November and December, show 242 workers referred and 211 accepted. - No report by sex. (Manpower Review, March, 1944)

Michigan-3

Michigan - Gas Ranges

4-8-44 "Steel gas ranges for civilians are flowing off the production line at Norge's Muskegon Heights plant as war materials streams from other production lines in the same plant." Caption to picture showing long line of women who seem to be adding small parts to nearly completed stoves passing them on a conveyor. (Mich. Mfgr. and Financial Record, Mar. 25, 1944)

Michigan

4-22-44 Industries of the Lansing area face necessity of large scale employment of women to prevent reclassification to a "critical labor shortage area" by W.M.C. Only 15.5 percent of all factory workers are women now. (L. Journal, Apr. 4, 1944)

Michigan

Power

5-27-44 State Director of War Man/Commission, states Detroit's principal war industries will need 49,000 men workers by September against a supply of 20,000; and 22,000 women, out of a supply of 46,000. (Michigan Mfgr. and Financial Record, May 20, 1944)

Michigan - Aircraft

6-10-44 Women are urgently needed by Berkley and Gay Furniture Co., Grand Rapids, making Bullet-proof fuel tanks and de-icers for bombers. The work is easily learned but requires "a woman's touch". (Grand Rapids Hearld, May 21, 1944)

Trends in Michigan.

4-4-44 A survey showing employment, hours, and earnings by sex in August 1944, was made by the Michigan Department of Labor and Industry, the first such survey since October 1942. At the earlier date women were 8.5 percent of all wage earners, in 1944, 25.3 percent. Women's average hourly earnings were 83 percent of men's in durable goods, 67 percent in non-durable goods industries. The data for the two groups were as follows:

	Durable		Non-durable	
	Men	Women	Men	Women
Females as percent of all workers	-	25.3	-	31.8
Average weekly hours	46.7	43.9	47.4	40.9
Average weekly earnings	$64.08	$50.14	$53.22	$30.70
Average hourly earnings	1.373	1.142	1.124	.751

These data are given by individual industries.
(Michigan Labor and Industry, October 1944.)

Michigan

12-23-44 WMC has called a meeting in Detroit to discuss ways to utilize the present surplus of women in view of a shortage of men. There are 17,400 job vacancies where men are needed. Women laid off at the Naval Ordnance plant at Center Line have complained that they were unable to find other jobs of a comparable nature. (Detroit News, December 9, 1944.)

Michigan - 4

Michigan Unemployment

Persons receiving unemployment compensation in Detroit during December 1945 were:

3-7-46

Total	2,593
Women	2,100
Men	350
Sex not determined	143

Showing women to be at least 80 percent of the total. (Letter from Detroit Department of Public Welfare, January 19, 1945.)

Detroit Area

5-19-46 The employment situation in the Detroit Area in 1940 at peak, fall of 1944, at present and postwar is estimated as follows by the statistician of the Detroit C. of C.:

	1940	1944	1945	194X
Manufacturing	404,000	713,000	675,000	525,000
Nonmanufacturing	443,000	494,000	500,000	565,000
Total	847,000	1,207,000	1,175,000	1,090,000

Since the peak 40,000 persons have been laid off, mostly women. Many of these no longer expressed a desire to return to work. Detroit office of USES now lists 24,000 vacancies, 5,688 in high priority categories, and 16,973 in other essential work. (Michigan Manufacturer and Financial Record, April 28, 1945)

Michigan Aircraft

Army Air Forces has announced that Ford Motor Co., will stop making B-24's before the end of August. Nearly 100,000 workers throughout the country, making parts for this plane, will be affected. At Willow Run 22,000 are now employed, 30 percent - 6,600 - women. (Chicago Sun, April 18, 1944)

Though not officially announced, it was hinted that curtailment may be in order for the Ford Company's aircraft engine and tank engine plants. WMC officials said that manpower needs in Detroit and other southern Michigan areas can absorb "much of the male labor to be released." (Michigan Manufacturer and Financial Record, April 21, 1945.)

Michigan

6-23-46 Unemployment checks paid out recently to men and women in the Detroit area are reported as follows:

Month	First Checks		Last Check	
	Men	Women	Men	Women
March	523	1,263	44	419
April	158	771	44	811
May (up to May 24th)	377	2,589	39	813
Total for 3 months	1,058	4,623	127	2,043
Percent women's of total		81.4		94.1

(Report by letter from Detroit Dept. of Public Welfare to Mrs. Lowrie)

Michigan - Cut-backs

6-9-45 The Ford Motor Co., has been notified of termination of its Army jeep contract by July 31. Curtailment will affect 1,800 workers at the Rouge plant and about 700 in three assembly plants.

Additional cutbacks in contracts of General Motors, Flint will increase to more than 9,000 the number of employees affected.

Cancellation of contract for machine guns at AC Spark Plug will affect about 3,000 workers. (Mich. Mfgr. and Financial Record, May 19, 1945)

R. I. Thomas, president, UAW-CIO has written Henry Kaiser asking him to "give serious consideration to the proposal" that he take over Willow Run, perhaps to build automobiles, as it would be a great loss to nation if the plant were to lie idle. (Detroit Times, May 15, 1945)

Detroit, Mich.

9-14-45 The Committee for Economic Development in Detroit has surveyed 7,000 employers of nearly a million men and women to learn postwar employment prospects. The survey covered Wayne, Oakland and Macomb counties (incl. Pontiac). A minimum of unemployment is indicated, but no jobs to spare for outsiders. One serious problem is to find jobs for 200,000 returning veterans.

The study indicates that reconversion, which started July 1 will last 18 months, with an average per plant of $3\frac{1}{2}$ months.

Employment estimates are:

Total -- during reconversion	669,000
at end of reconversion	911,000
under "highly prosperous conditions"	1,083,000
Women employed by the 7,000 firms:	
1940	129,000
1945	284,000
During reconversion	186,000
After reconversion	204,000

"Highly prosperous conditions" include making 6 million automobiles a year, 1 million more than has ever been done. (Detroit Times, July 22, 1945)

Michigan - Automobiles

About 150 women displaced from wartime jobs were picketing the Ford Highland Park Plant November 8. They established the picket line because they said 2,200 men without seniority had been hired, while 5,000 women war workers had not yet been recalled. They said they would continue picketing until their seniority rights were secured. The president of the local said less than 300 women are now employed compared with 5,849 at the wartime peak. Ford officials said women are not being hired now because manufacture of tractors is too heavy for them. (N. Y. Times, Nov. 9, 1945)

Detroit, Michigan Michigan-6

9-14-45 About 200,000 war workers were unemployed in the Detroit Area as of Aug. 24. A recent administrative ruling of the Mich. Unemployment Compensation Commission provides that skilled workers who formerly held unskilled jobs must accept work at their lowest skill (if necessary?) or lose rights to unemployment compensation. Such jobs pay comparatively low wages. Women, who comprise three-fourths of the currently unemployed are particularly affected as the majority were unskilled before entering war work. Union has announced that they will fight this ruling through the courts. A woman who leaves work to move with her husband or family to another locality is also disqualified.

As of Aug. 23 only 8,000 jobs were available for the 200,000 unemployed according to WMC. These were distributed as follows: Skilled, 30 percent; unskilled, largely construction, 25; semi-skilled, mostly construction, 15; clerical-sales or service, 25; professional or administrative, 5. (Detroit Free Press, Aug. 7, 8, 23 and 24, 1945)

Michigan - Manufacturing

Women were 27 percent of all workers in Michigan manufacturing industries in October 1945, compared with 23 percent in March 1945, according to State official reports. A relative loss in durable goods industries had been more than made up by the gain in non-durable goods employment. However, numbers employed are not reported. Average hours worked, as well as average hourly earnings, had declined for women in durable goods industries:

	March 1945	October 1945
Percent women were of total employed		
Durable goods	22	17
Non-durable goods	32	37
Average hours worked per week by women		
Durable goods	44	39
Non-durable goods	42	39
Average hourly earnings of women		
Durable goods	$1.12	$ .95
Non-durable goods	.78	.81

(Michigan Labor and Industry, June 1945 and January 1946.)

Work and Wage Experience of Willow Run Workers, p. 1074

A study of 307 representative workers, 128 of them women: Includes previous experience, earnings, postwar plans.

Michigan-7

***Michigan - Postwar Employment

Between February 15, and April 15, 1946, women's employment in 2,171 establishments reporting to the Michigan USES, increased by 20,711. The gain in manufacturing was more than 18,000, in non-manufacturing 2,500.

The employment of women in April was as follows:

	April 1946	
	Number of women	Percent of total employed
All manufacturing	119,910	17
Food products	6,513	33
Textiles and apparel	3,232	63
Furniture	2,956	23
Paper and paper products	4,122	22
Chemicals	5,905	23
Iron and steel products	15,146	17
Non-ferrous metals	3,999	22
Electrical equipment	14,375	47
Machinery	14,814	18
Automobiles and parts	40,576	11
Other manufacturing	8,222	22
All non manufacturing 1/	68,964	46
Total	188,874	22

1/ Mining, construction, transportation, communications and utilities, Government, "other."

(The Employment Service Record, Michigan, April 1946, p. 17.)

Michigan---Placements, 1949

1-26-50

During the year ending June 30, 1949, over ½ million new work applications were received by the Michigan employment service, one-fourth of them from women. Women constituted about one-fourth of all referrals to jobs and of all non-agricultural placements. Of all placements in clerical and sales jobs, and in service jobs, about two-thirds were placements of women.

	Nonagricultural placements	
	All persons	Percent women of all persons
All nonagricultural placements	104,739	24.0
Professional and managerial	1,442	9.6
Clerical and sales	13,769	67.6
Service	15,660	62.7
Skilled	8,606	2.9
Semiskilled	23,572	11.7
Unskilled and other	41,690	6.8

(Annual Report of the Michigan Unemployment Compensation Commission for the year ending June 30, 1949, Table 4)

U. S. Department of Department
WOMEN'S BUREAU
Washington, D. C.

EMPLOYMENT BY SEX IN ESTABLISHMENTS REPORTING TO THE WAR MANPOWER COMMISSION, LANSING LABOR MARKET AREA *

Note: Reports are obtained from establishments on the basis of their manpower problems, essentiality of activity, size of firm, or importance to the community in which they operate. The tabulations do not necessarily cover the total number of employees in the area.

Date	Number of establishments reporting	Total employment	Employment of Women	
			Number	Percent of total
July 1, 1945	13	24,010	4,432	18.5
June 15, 1945	13	25,120	4,752	18.9
June 1, 1945	12	25,761	5,157	20.0
May 15, 1945	14	28,067	6,045	21.5
March 1945	22	31,824	7,319	23.0
January 1945	23	33,453	7,895	23.6
November 1944	21	32,645	7,785	23.8
September 1944	21	33,509	8,019	23.9
July 1, 1944	23	32,376	6,496	20.1
May 1, 1944	30	33,208	5,743	17.3
November 1, 1943	28	33,317	4,737	14.2

* Source: War Manpower Commission, Reports and Analysis Service. Summary of ES-270 Reports. Nov. 1, 1943- July 1, 1945.

United States
Employment Service
for Michigan

Reports & Analysis
Section
October 16, 1942

5

Trend of Employment of Women by Major War Plants in Detroit Area

Period	Employment of 164 Major War Plants						
	Total Number	Women		Change from Previous Period			
				Total		Women	
		Number	% of Total	Net	%	Net	%
June 1941	381,000 a/	35,000	9.2%	xx	xx	xx	xx
June 1942	406,100	33,200	8.2	+25,000	+16.6%	-1,800	-5.1%
July 1942	427,000	36,600	8.6	+21,100	+5.2	+3,400	+10.2
August 1942	447,700	40,000	8.9	+20,500	+4.8	+3,400	+ 9.3
September 1942	461,000	45,700	9.9	+13,400	+3.0	+5,700	+14.3

a/ Represents about 75% of total manufacturi g in the Area.

WOMEN'S BUREAU
U. S. Department of Labor
Washington

AVERAGES OF WEEK'S EARNINGS, HOURS WORKED, AND HOURLY EARNINGS OF MEN AND WOMEN EMPLOYED IN MICHIGAN MANUFACTURING INDUSTRIES AND PERCENT WOMEN EMPLOYED, April 1942

Industry	Number of plants reporting	Average weekly earnings		Average weekly hours		Average hourly earnings computed (cents)		Percent women to total workers
		Men	Women	Men	Women	Men	Women	
Automobile	52	$54.15	$29.33	43.0	37.3	125.9	78.6	34
Automobile parts	35	52.34	32.83	45.6	38.6	114.8	85.3	6.0
Aircraft and parts	3	61.94	38.71	50.7	47.3	122.2	81.8	4.0
Shipbuilding	4	45.03	-	45.7	-	-	-	*
Carbuilding and repairing	14	39.04	-	45.8	-	-	-	*
Agricultural machinery	8	41.53	15.16	44.8	42.1	92.7	36.0	6.9
Office and household machinery	10	43.44	32.40	40.9	39.8	106.2	82.0	17.3
Other electrical machinery	12	38.09	22.15	42.7	36.8	89.2	60.2	36.4
Engines, turbines, etc.	10	53.27	-	51.0	-	104.5	-	*
Foundry and machine shops	97	47.57	20.57	46.4	41.1	102.5	69.5	6.0
Machine tools and accessories	26	72.57	34.73	55.3	48.9	131.2	71.0	2.1
Other machinery	9	47.43	-	51.1	-	-	-	*
Blast furnaces, etc.	16	48.08	-	43.7	-	-	-	*
Tools	7	50.43	28.34	53.9	45.8	93.6	61.9	37.6
Screw machine products	9	55.86	32.54	50.7	41.1	110.2	79.2	10.0
Structural and ornamental work	11	49.32	-	49.9	-	-	-	*
Iron, pipe and plumber's sup.	5	45.79	32.82	42.6	39.1	107.5	83.9	14.7
Wire work	12	40.24	25.55	42.5	38.0	94.9	67.2	23.3
Hardware, stamped ware, etc.	30	54.04	35.18	45.8	41.8	118.0	84.6	24.0
Stoves, and heating apparatus	19	36.77	23.78	39.6	37.3	92.9	63.8	4.7
Non-ferrous metal products	34	45.37	31.12	43.7	41.0	103.8	75.9	9.9
Jewelry, instruments, etc.	5	45.32	27.62	44.6	38.4	101.6	71.9	45.3
Sawmills and logging operations	13	23.33	16.28	41.1	38.5	56.8	42.3	2.3
Millwork	24	29.58	20.06	46.3	41.1	63.9	48.8	20.8
Furniture and finished products	38	31.85	20.44	43.2	38.2	73.7	53.5	11.7
Other wood products	6	25.56	20.78	40.7	37.2	62.8	55.9	40.4
Brick, tile, and terra cotta	14	34.86	-	38.8	-	-	-	*
Cement and concrete	15	34.65	-	38.1	-	-	-	*
Other stone, clay and glass prod.	6	39.35	21.73	44.6	37.3	88.2	58.3	7.0
Baking	17	30.92	20.88	43.1	37.6	71.7	55.5	47.9
Beet sugar refining	10	27.54	-	41.0	-	-	-	*
Beverages, including breweries	18	41.21	-	38.9	-	-	-	*
Canning and preserving	27	22.40	15.92	39.0	33.4	57.4	41.7	28.9
Dairy products	13	29.64	14.00	46.4	33.5	63.9	41.8	6.3
Flour and feeds	15	29.72	17.06	41.5	35.6	71.6	47.9	2.9
Ice cream	7	41.13	22.33	48.3	40.2	85.2	55.5	16.9
Meat packing	7	39.37	24.04	51.1	38.6	77.0	62.3	27.2
Other food products	6	44.44	29.05	41.9	38.3	106.1	75.8	32.1
Paper and pulp	35	34.43	19.66	41.1	35.3	83.9	55.7	12.9
Paper products	17	36.41	18.84	42.8	38.7	85.1	48.7	37.2
Book and job printing	27	36.81	18.23	39.4	35.9	93.4	50.8	27.6
Newspapers and periodicals	13	43.35	20.48	36.5	39.3	118.8	52.1	5.4
Engraving, lithographing, etc.	7	35.89	17.20	33.6	37.1	106.8	46.4	4.8
Chemicals	7	46.35	-	42.3	-	-	-	*
Pharmaceuticals and cosmetics	6	38.93	21.90	41.0	38.8	90.1	55.4	43.7
Paints and varnishes	15	40.66	28.80	41.8	39.3	97.7	73.3	2.9
Other chemical products	11	35.55	23.51	40.0	34.3	88.9	68.5	12.8
Woolens and worsteds	4	27.28	22.41	42.2	38.9	64.6	57.6	37.8
Hosiery and knit goods	8	32.38	17.66	42.8	35.8	75.7	49.3	80.8
Clothing made from textiles	22	30.52	19.68	42.5	37.6	71.8	52.3	87.4
Other textiles and products	13	35.63	18.21	41.4	36.0	86.1	50.6	50.7
Tanning and finishing	9	32.09	23.29	40.9	39.5	78.4	59.0	9.2
Leather products	6	28.78	22.51	39.4	40.7	73.0	55.3	56.4
Boots and shoes	7	30.02	19.25	41.2	38.8	72.9	49.6	47.3
Tires and tubes	3	47.53	28.36	37.9	31.9	125.4	84.2	14.8
Tobacco	9	34.70	15.74	40.6	33.2	85.5	47.4	84.2
Sporting goods, toys, optical goods, and musical instruments	10	32.11	19.31	42.8	40.8	75.0	47.3	26.8
Other miscellaneous industries	15	40.26	29.29	43.6	43.4	92.3	67.5	41.4

* Less than 0.5 percent

Source: Derived from Michigan Department of Labor and Industry. Women Workers and White Collar Workers in Michigan Manufacturing Industries. July 1942.

U. S. Department of Labor
WOMEN'S BUREAU
Washington

Occupation Group and Industry Group of Men and Women 14 years old and over in Ingham County, Michigan, 1940

Employment Status, Class of Workers Major Occupation Group, and Industry Group	Ingham	
	Men	Women
Total population (all ages)	64,930	65,686
Employment Status		
Persons 14 years old and over	49,492	50,741
In labor force	39,444	13,135
Percent of pupulation 14 years old and over	79.7	25.9
Employed (except on public emergency work)	33,874	11,848
Wage and salary workers	27,802	10,802
Employers and own-account workers	5,721	735
Unpaid family workers	247	251
Class of worker not reported	104	60
On public emerg. work (WPA, NYA, etc.)	2,077	531
Seeking work	3,493	756
Experienced workers	3,135	576
New workers	358	180
Not in labor force	10,048	37,606
Engaged in own home housework	245	29,580
In school	5,174	4,841
Unable to work	2,583	2,024
In institutions	652	103
Other and not reported	1,394	1,058
Employed Workers by Major Occupation		
Employed (exc. on public emergency work)	33,874	11,848
Professional workers	2,335	1,598
Semiprofessional workers	516	97
Farmers and farm managers	2,249	33
Proprietors, managers, and officials, except farm	3,608	417
Clerical, sales, and kindred workers	5,286	5,195
Craftsmen, foremen, and kindred workers	6,154	135
Operative and kindred workers	8,086	898
Domestic service workers	32	1,707
Service workers, except domestic	2,008	1,603
Farm laborers (wage workers) and farm foremen)	803	8
Farm laborers, unpaid family workers	184	12
Laborers, except farm	2,331	54
Occupation not reported	282	91
Employed Workers By Industry Group		
Employed (exc. on public emergency work)	33,874	11,848
Agriculture	3,316	63
Forestry (except logging) and fishery	17	1
Coal mining	1	-
Crude petroleum and natural gas production	12	-
Other mines and quarries	27	1

Occupation Group and Industry Group of Men and Women 14 years old and over in Ingham County, Michigan, 1940 (cont'd)

Employment Status, Class of Workers Major Occupation Group, and Industry Group	Ingham	
	Men	Women
Construction	1,973	56
Manufacturing industries:	13,496	1,200
Food and kindred products (mfg.)	583	86
Textile-mill products (mfg.)	28	7
Apparell and other fabricated textile products (mfg.)	7	6
Logging	9	-
Sawmills and planning mills	62	-
Furniture, store fixtures, misc. wood goods (mfg.)	84	22
Paper and allied products (mfg.)	16	3
Printing, publishing, and allied industries	503	127
Chemicals and allied products (mfg.)	101	18
Petroleum and coal products (mfg.)	25	-
Leather and leather products (mfg.)	4	-
Stone, clay, and glass products (mfg.)	94	5
Iron and steel and their products (mfg.)	1,073	61
Nonferrous metals and their products (mfg.)	45	1
Machinery (mfg.)	637	47
Automobiles and automobile equipment (mfg.)	9,731	760
Transportation equipment (mfg.) except auto	69	4
Other and not specified manufacturing industries:	425	53
Railroads (inc. r.r. repair shops) and ry.express:	261	6
Trucking service	504	16
Other transportation	215	24
Communication	188	161
Utilities	662	84
Wholesale trade retailing	855	139
Food and dairy products stores, and milk/	1,156	302
Eating and drinking places	554	729
Motor vehicles & accessories retail, & filling sta.	1,017	81
Other retail trade	2,192	1,401
Finance, insurance, and real estate	1,084	640
Automobile storage, rental, and repair services:	455	17
Business and repair services, except automobile:	296	66
Domestic service	59	1,785
Hotels and lodging places	164	277
Laundering, cleaning, and dyeing services	221	232
Miscellaneous personal services	367	337
Amusement, recreation, and related services	266	97
Professional and related services	1,965	2,275
Government	2,278	1,702
Industry not reported	273	156

ource: Sixteenth Census of the United States: 1940 Population, Vol. II, Table 23, p. 810.

10/29/43
Pidgeon

IMPACT OF THE WAR
on the Detroit Area

Working notebook for use by local groups studying recent economic developments and formulating plans for the post-war period

THIS MATERIAL HAS HAD WAR DEPARTMENT REVIEW

U. S. DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

Employment and Occupational Outlook Branch
Postwar Division

INDUSTRIAL AREA STUDY NO. 10
JULY 1943

FOREWORD

This study is one of a series of industrial area reports which the Bureau of Labor Statistics is preparing as a service to local civic, labor, and business groups, and as a means of developing a panoramic background of local conditions against which proposed Federal policies for the post-war period can be more realistically appraised. The series will cover as many as possible of the 300 main industrial centers of the Nation, which even before the war contained three-fifths of our total population and four-fifths of our factory workers and miners. In general these are the communities which have been most changed and expanded by the war and which will later face the most serious problems of reconversion, reemployment, and industrial adjustments.

The job of developing a sound program for demobilization and sustained business activity after the war is big and difficult. It will require the best efforts of many groups and individuals. Moreover, no one knows how soon we may be confronted with the need for immediate action. For all these reasons it is important to begin thinking the problems out now. Responsible community leaders realize this, and are devoting whatever time they can spare from their wartime tasks to the study of post-war problems.

Disagreements on important economic problems continue to exist, as is to be expected in a democracy. But it seems probable that there is a substantial and growing recognition on the part of all major groups that the American economy after the war must be made to operate on a high level of production, income, and employment. The prosperity of business men and farmers depends on ample markets, which in turn presuppose full industrial employment, large pay rolls, and a broad distribution of purchasing power.

(LS 44-578)

The welfare of labor requires adequate job opportunity at good wages, which hinges on the preservation of sufficient business opportunity to stimulate capacity output of goods and services. Clearly all groups have a vital stake in the full utilization of America's manpower, inventiveness, and material resources--a fundamental agreement of interests that has been expressed and reemphasized by teamwork on labor-management committees, and which can well lead to further cooperative efforts throughout the United States.

All agencies and levels of Government too will have to participate in the task of post-war reconstruction if it is to be brought to a successful conclusion. But the necessary scope of this participation, and the proper division of responsibility between local, State, and National Government, cannot be determined accurately unless local groups first stake out the field, examine the reconversion and reemployment problem in their communities, and indicate the type and extent of assistance they will require from State and national authorities.

The studies in this series are not intended to be definitive; lacking the information and perspective which local residents alone can provide, they must aim at a more limited objective. They are meant to provide a solid base of statistical material on the local community before and during the war, with some suggestion of the problems to be met when hostilities end. It is hoped that they will stimulate and assist local groups in gauging the impact of the war on their community, and in preparing for a swift and effective shift of production to peacetime uses.

This report was prepared by Bertrand R. Seidman under the direction of Marion Hayes.

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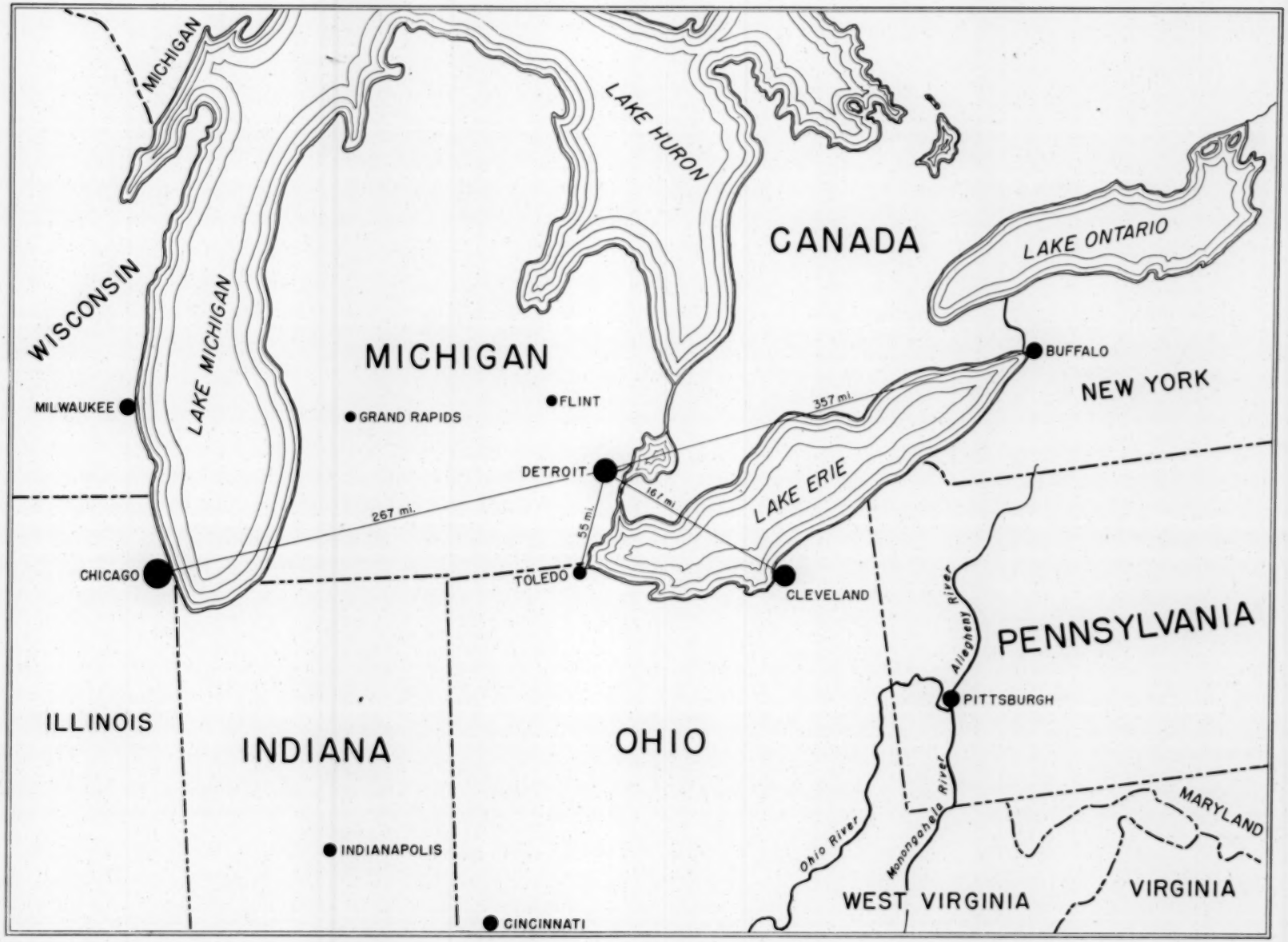
The Detroit Industrial Area is located in southeastern Michigan. It includes Wayne, Macomb, Oakland and Washtenaw Counties and covers a total area of 2,681 square miles. In 1940 the population of these 4 counties was 2,458,139. Detroit, is situated on the Detroit River, one of the connecting waterways between Lake Huron and Lake Erie. The fourth largest city in the Nation, it had a population of 1,623,452 in 1940. Other cities in the 4-county area are Dearborn, Pontiac, Ann Arbor, Highland Park, and Hamtramck. Chicago is 267 miles west, and Toledo, 55 miles south of Detroit. Several main railroad and bus lines serve the area and more than 50 steamship companies offer freight service from the port of Detroit. Before the war, the city was the leading automobile manufacturing center of the world. Now its enormous production facilities are turning out tremendous quantities of the mechanized weapons for total war.



D STATES DEPARTMENT OF LABOR
U OF LABOR STATISTICS

Section I

SUMMARY

From the time when it was a frontier post on the narrows of the Detroit River to the present day when it has become one of the greatest centers for the production of bombers, guns and tanks, Detroit has had a complex and vigorous growth. Before the war it was best known as the cradle of the automobile industry and the world's leading producer of automobiles. The whole world knows the job Detroit has done in converting from the manufacture of pleasure cars and other peacetime products to the production of the weapons of war. In that process, more than 300,000 workers have been added to factory pay rolls in the Detroit Industrial Area. Many are women and older workers who will retire from active employment when the country no longer needs their services. Some who have come from outside the area will return to their home communities. The all-important question is: Will peacetime industry in the area be able to provide employment for the remaining war workers and for the hundreds of thousands of men who will be returning from the armed forces eager to take their places in the civilian economy?

In 1940 nearly half of Detroit's workers were employed in manufacturing. Detroit's percentage of factory workers was considerably higher than that of other leading cities. Conversely, the percentage employed in trade was lower than that of other cities of a million or more population. Nearly 65 percent of all the manufacturing workers were concentrated in a single industry--automobiles. Another 15 percent were in iron and steel and machinery. Thus, four-fifths of all the manufacturing workers in the area were employed in these 3 closely related industries. In other words, as every Detroiter knows, Detroit is pretty largely a one-industry town--as automobiles go, so goes Detroit.

Cyclical fluctuations in automobile production have been very great. A comparison of the Federal Reserve Board Index (1935-1939=100) for all manufacturing and for automobile factory sales for 3 years tells the story:

YEAR	ALL MANU-FACTURING	AUTOMOBILE FACTORY SALES
1929.....	110	139
1932.....	57	36
1937.....	113	125

The greater than average up and down movements in automobile production have been reflected in manufacturing trends in the Detroit Area. Of the 5 largest cities in the Nation, Detroit showed the greatest drop in manufacturing employment between 1929 and 1933; the largest increase from 1933 to 1937.

Most of Detroit's auto workers have been employed by the giants of the industry, General Motors, Ford, and Chrysler, in the production of low-price cars and trucks. These three firms have made Chevrolet, Ford, and Plymouth household words in America. Of the three, only the Chevrolet was manufactured outside of the Detroit Industrial Area. It is not surprising then to find that Detroit's percentage of the total

number of automobile workers increased from 35.4 to 48.0 percent during the period 1929-1939 while its share of the dollar output rose from 31.8 to 41.0 percent. Its position relative to other producing centers was even more favorable in the depression year 1933, an evidence perhaps of the greater strength of Detroit firms as compared with the rest of the industry.

Even though Detroit has been so completely dominated by the manufacture of motor cars, there is a host of firms in other work, many of them of considerable importance in the national output of their own industries. Many of these firms have produced mainly for the automobile industry. In this category are plants producing steel, machine tools, nonferrous metal products, paints, and stamped and pressed metal products. Others are largely independent of the automobile industry. Detroit is the home of the largest pharmaceutical manufacturer in the world, an important vacuum cleaner concern, a large manufacturer of refrigerators, one of the largest business machine firms, and many other well-known companies. In addition, as in many other large cities, its meat-packing, malt liquor, and printing industries are all rather important in the economy of the area.

But when war came it was obvious that Detroit meant automobile factories and automobile workers. It is as true today as it was in prewar years. Nearly two-thirds of the contracts for the articles of war which were awarded in the 4-county Detroit Industrial Area went to 3 automobile concerns. Although Detroit is now manufacturing a myriad of products needed in the war effort, even as late as the end of 1942 motor vehicles and parts accounted for one-fifth of the total value of all war contracts in the area.

The conversion of industry to the production of tanks, bombers, jeeps, and artillery produced a brief yet enormous strain on Detroit's economy. Thousands of men were thrown out of work--some for weeks, others for months. In February of 1942, nearly 278,000 workers in the Detroit Area filed unemployment compensation claims. Once conversion was completed a tremendous demand for war workers became evident: Thousands of workers entered the labor force, thousands shifted over into war jobs from nonwar work or moved into the area to work in Detroit war plants. By March 1943 Detroit's population, which had already increased 5-fold between 1900 and 1940, had risen by an additional 180,000.

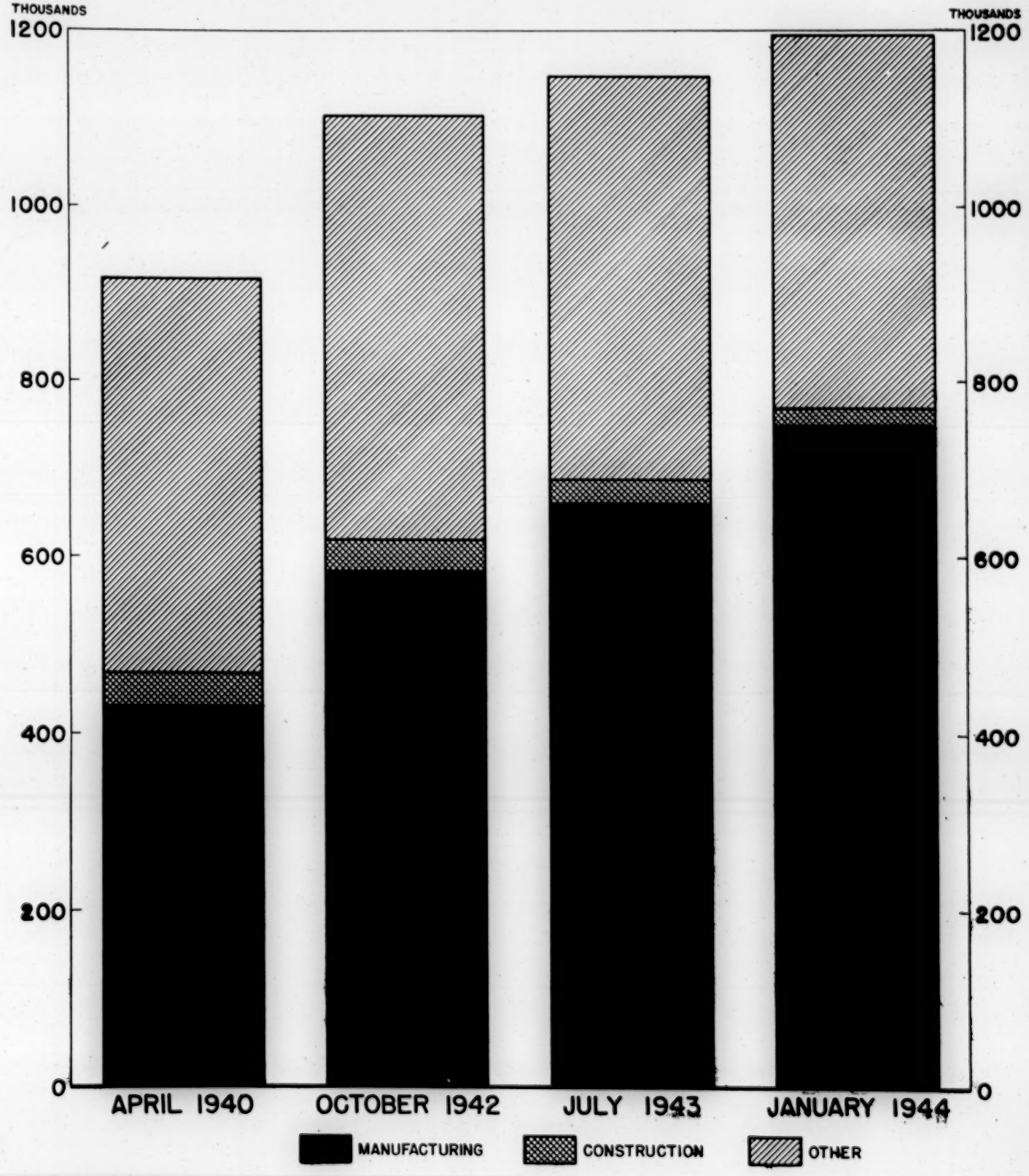
Perhaps the simplest way of seeing how great the impact of the war on Detroit's economy has been is to study just five lines of employment estimates:

Industry	April 1940	July 1943	January 1944
	(thousands of workers)		
All manufacturing.....	432	660	750
Automobile and automobile equipment..	275	59	69
Aircraft.....	3	288	344
Ordnance, tanks.....	...	144	167
Other.....	154	169	170

CHART 1

ESTIMATED EMPLOYMENT IN THE DETROIT AREA

1942, 1943, AND 1944 COMPARED WITH 1940



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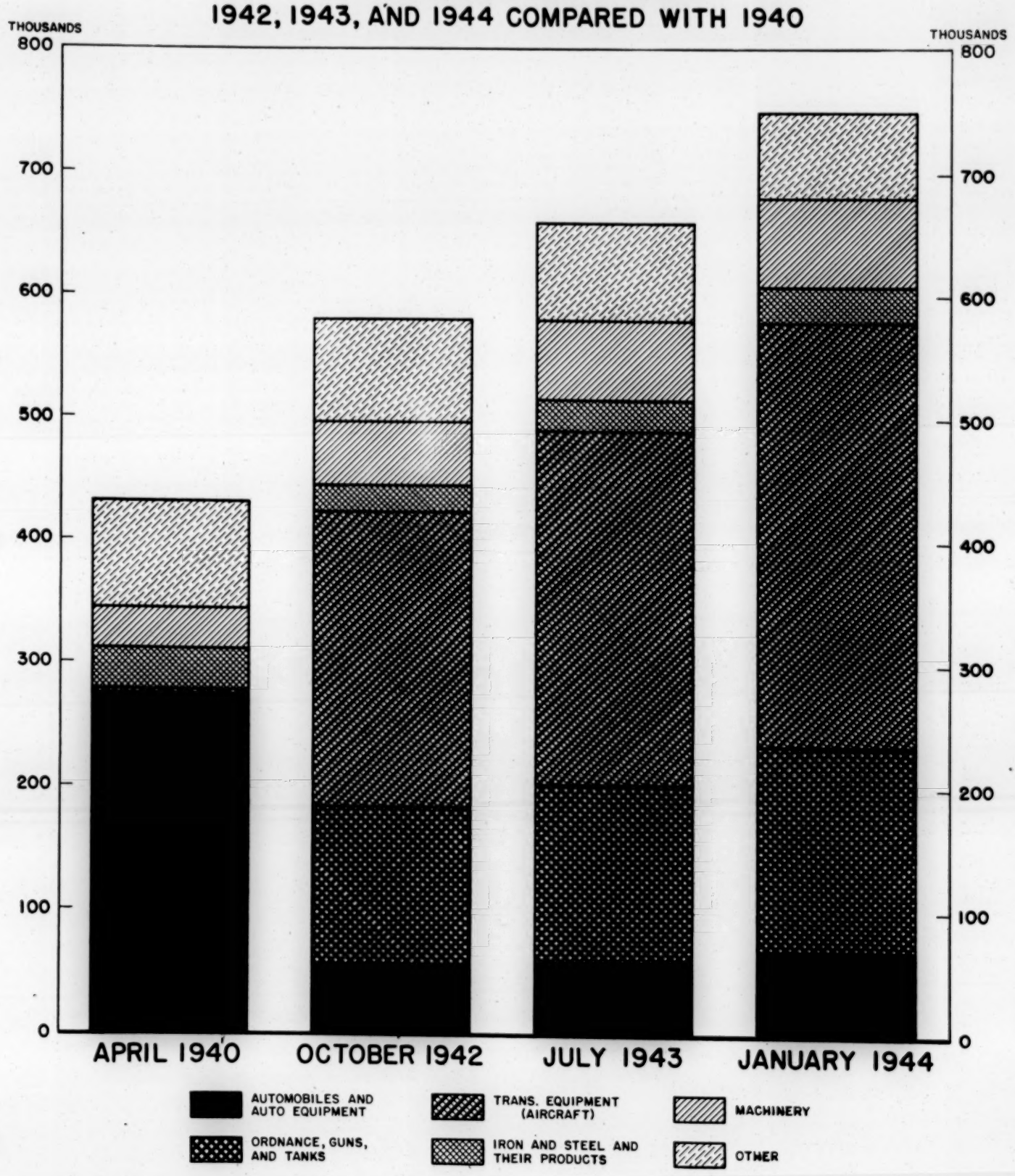
DATA IN TABLE 23

CHART 2

ESTIMATED MANUFACTURING EMPLOYMENT IN THE DETROIT AREA

1942, 1943, AND 1944 COMPARED WITH 1940



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DATA IN TABLE 26

These estimates very forcibly suggest one question: How will the lines look when the figures for 1946, and 1948 are put in? What will the end of the war mean to Detroit?

Some things we already know. We know, for example, that whenever the war in Europe ends, the need for tanks will decline. We know that when the war on all fronts is over, the demand for tanks, bombers, artillery and all other specialized war products will drop abruptly. Contracts will be cancelled, factories closed down, and men laid off. The decline in employment may be swift and substantial: It will certainly show up in the sales of Detroit merchants and in the sales of other industries and areas to Detroiters. How long this immediate shock period will be, depends pretty largely on what the automobile industry decides to manufacture after the war. If the 1942 models are put into production, as now seems likely, the reconversion will probably take only 6 to 9 months. If new models are to be turned out, the conversion period will be much longer.

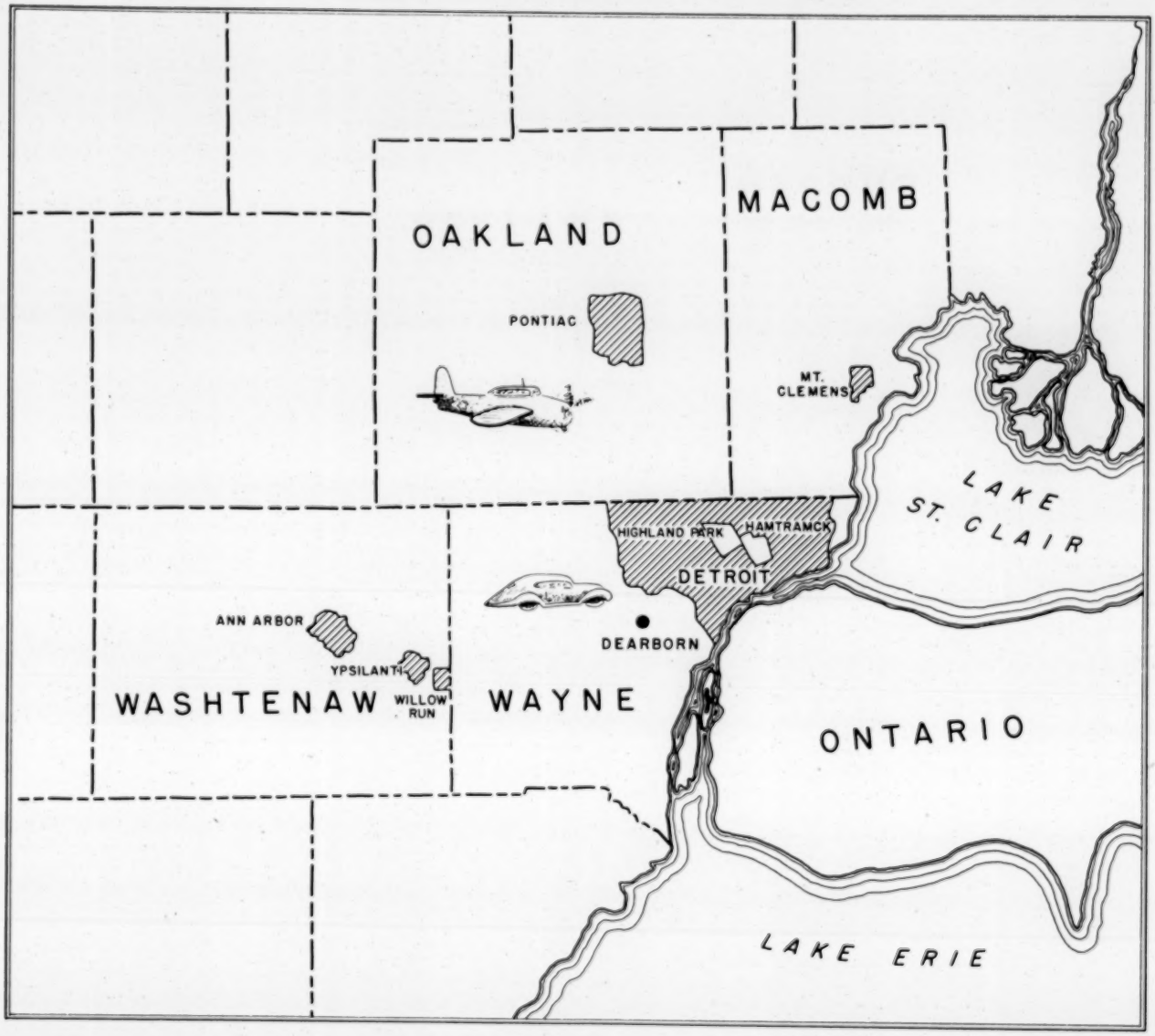
These are some of the things we know. There are very many other factors which are still question marks but very important question marks to the hundreds of thousands now employed in war work by Detroit automobile concerns. At the end of the war, employment in the automobile industry will be twice the pre-war peak. Will the firms which make up the industry be able to produce and sell twice as many cars and trucks as they did before the war? It does not seem likely. Yet unless something like this level of output can be reached, or unless automobile firms can turn to producing aircraft engines and parts, prefabricated houses or some other article needed in abundance in peacetime, there will be thousands of jobless workers when the war is over. Because it is likely that the largest demand in the post-war period will be for the low- and medium-priced cars of the biggest firms, Detroit motor car manufacturers may do better than their competitors in other areas. But even the Detroit companies will not be able to operate at capacity levels unless purchasing power is kept at a high enough level to allow for record production of automobiles, aircraft parts and engines, and whatever other products the auto companies decide to manufacture.

Whatever course the industry takes, one thing is certain: There will be a period of transition. Whether it is 2 months or 2 years, there will be a period during which a special effort will have to be made to provide useful and satisfactory employment for the men and women now in the armed services and in war work. For no city--certainly not one as important as Detroit--will wish to tell the men who have worked and fought to win the war that if they cannot find jobs they will have to go on relief. Plans should be undertaken now to make sure that there will be jobs for them. If it is in any way possible, these jobs should be in private industry at reasonable rates of pay.

The task of securing these jobs, the task of setting our economy on the high road of economic growth and securing our present economic system is clearly not a job just for Detroit. Part of the task is a responsibility for the country as a whole, and the Federal Government will undoubtedly have to shoulder part of the job. Part of the work can be done by State and local Governments. Already the city of Detroit has drawn up a schedule of essential public works. But, finally, a large share of the work will have to be done outside the realm of Government. This responsibility will fall on the leaders in civic, labor and business activity in the Nation's fourth city.

If Detroit, and the Nation, are to swing into full-scale peacetime production and carry through the promise of plenty which is inherent in America, careful preparation must be made. Without sincere and public-spirited work by civic groups, labor unions and business organizations, we shall not win through to the kind of peace which we have every right to expect. We shall not be doing our duty by those who have given their lives for that peace. We shall not make certain the healthy economy and high level of useful employment which all desire. We can expect to achieve these ends, but it will require hard work, and our success will depend not a little on our willingness to begin preparing for demobilization in good time.

THE DETROIT AREA



Section II

LABOR FORCE AND EMPLOYMENT

A.--LABOR FORCE, 1940

(Source: U. S. Census of Population, 1940. See Appendix table A.)

1.--*Percent of total population 14 years old and over in the labor force.*

Even before the war boom expanded industrial activity in the Detroit Area, there was a high proportion of the adult population in the labor force. This was especially true for the city of Detroit where the figure was significantly above that for the United States or the East North Central States. In the Industrial Area outside of the city, however, the percentage was considerably lower.

	PERCENT
United States.....	52.2
East North Central States...	51.6
Detroit Industrial Area.....	55.5
City of Detroit.....	57.1

2.--*Women in the labor force.*

Women workers made up 24.3 percent of the labor force in the city of Detroit, which was exactly the same proportion as for the country as a whole. Within the Detroit Area, however, there was a wide variation, ranging from 15.6 percent in Macomb County to 27.9 percent in Washtenaw, where the University of Michigan and Michigan State Normal School are located. Here, professional and personal services, which included a large proportion of women, employed nearly 30 percent of all workers as compared with only 14 percent in these groups for the area as a whole.

There were also wide differences within the area in the percentage of all women in the labor force, ranging from 18.7 percent in Macomb County to 28.3 percent in the city of Detroit where there were more employment opportunities for women. The corresponding figures for the United States and the East North Central States were 25.4 and 24.0.

Most of the women workers were in personal and professional services, where they made up more than half of the total number. They comprised about one-third of those in trade and finance, but only 10.8 percent of those in manufacturing. The low proportion in manufacturing may be attributed to the fact that manufacturing in the Detroit Area was largely concentrated in the production of heavy articles and therefore employed few women.

3.--*Unemployment, 1940.*

Unemployment in the area as a whole in 1940 was slightly less than the average for the Nation. In the city of Detroit, where there were 108,000 jobless, it was below the percentage of 3 of the 4 other cities of 1,000,000 or more population. In Oakland, Washtenaw, and Macomb Counties unemployment was less than in Wayne County or Detroit proper,

the percentages ranging from 7.5 for Washtenaw to 11.3 for Oakland. With the coming of defense production, Detroit was able to draw only a limited number of workers from among those in the immediate area who were without jobs..

	PERCENT OF UNEMPLOYED IN THE LABOR FORCE 1940
United States.....	14.4
Detroit Industrial Area.....	13.7
Detroit.....	14.7
Chicago.....	15.2
Los Angeles.....	14.5
New York.....	18.3
Philadelphia.....	19.7

B.--EMPLOYMENT, 1940

(Source: U. S. Census of Population, 1940. See Appendix table B and chart 3.)

1.--*Employment by industry groups.*

a.--LEADING INDUSTRY GROUPS:

Manufacturing, the dominant industry in the Detroit Industrial Area, employed 431,945 persons in 1940, 47 percent of all workers. Seventeen percent were in wholesale and retail trade, the second largest group. No other single group employed as much as 10 percent of the total.

Table 1.--Employment in Leading Industry Groups in the Detroit Industrial Area, 1940

Industry	Number	Percent
Total.....	917,447	100.0
Manufacturing.....	431,945	47.1
Trade.....	157,333	17.1
Personal services....	67,226	7.3
Professional and related services....	61,687	6.7
Other.....	199,256	21.8

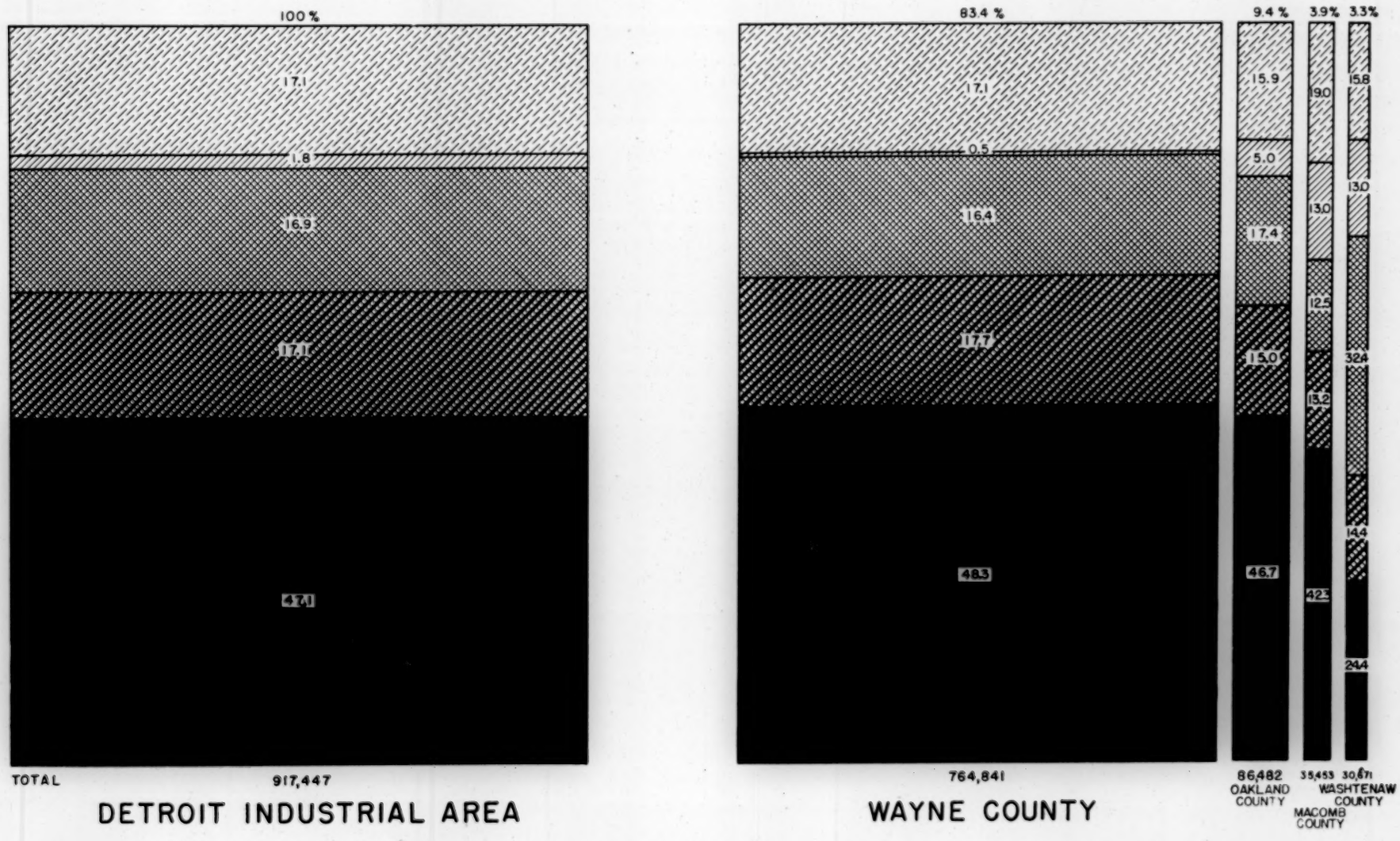
b.--CITY OF DETROIT COMPARED WITH OTHER LARGE CITIES.

1.--Manufacturing employment as percent of total employment. (Chart 4.)

Manufacturing firms were relatively more important as employers of labor in Detroit than in any other of the 10 largest cities in the country. Almost half of Detroit's working force were engaged in manufacturing in 1940. Cleveland, which ranked second to Detroit among these cities in percentage of manufacturing to total employment, was considerably lower, with 40.5 percent.

CHART 3

EMPLOYMENT IN MAJOR INDUSTRY GROUPS, DETROIT INDUSTRIAL AREA, 1940



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Source: U.S. CENSUS OF POPULATION 1940

	PERCENT
Detroit.....	47.2
Cleveland.....	40.5
Philadelphia...	35.3
Chicago.....	34.1
St. Louis.....	33.0
Baltimore.....	31.6
Pittsburgh.....	26.9
New York.....	26.3
Boston.....	22.0
Los Angeles....	18.2

ii.--Employment in trade as percent of total employment. (Chart 5.)

Although wholesale and retail trade in Detroit employed 117,000 persons and was the second largest source of employment, it was less important than in other large cities.

	PERCENT
Detroit.....	18.7
Chicago.....	22.9
Los Angeles....	25.4
New York.....	21.9
Philadelphia...	21.5

2.--*Employment in manufacturing.* (Chart 6.)

The automobile industry dominated the employment picture in the Detroit Area, accounting for 63.7 percent of all workers employed in manufacturing. Iron and steel, and machinery manufacturing, though they each employed less than 8 percent of the total, were next in importance. It is significant to note that nearly 80 percent of all manufacturing workers were employed in these three closely related industries.

Table 2.--Employment in Leading Manufacturing Industries in the Detroit Industrial Area, 1940

Industry	Number	Percent
All manufacturing.....	431,945	100.0
Autos and auto equipment.....	275,223	63.7
Iron and steel and their products,	33,942	7.9
Machinery.....	32,454	7.5
Food and kindred products.....	18,144	4.2
Printing, publishing, and allied industries.....	13,543	3.1
Other.....	58,639	13.6

The following table, showing the relative importance of the leading manufacturing industry and the five leading manufacturing industries in the five largest manufacturing cities in 1940, indicates the comparative lack of diversity in Detroit's economy.

Table 3.--Manufacturing Workers in Major Industries as Percent of Total Manufacturing in Five Cities, 1940

City	Major industry	Five major industries combined
Detroit	63.5	86.6
Chicago	17.9	67.3
Cleveland	30.4	70.9
New York	31.7	63.3
Philadelphia	16.3	58.0

Source: U. S. Census of Population, 1940.

C.--TRENDS IN MANUFACTURING EMPLOYMENT AND VALUE OF PRODUCTS, 1929-1939

(Source: U. S. Census of Manufactures.)

1.--*General economic trends in the area.* (Chart 7.)

In peacetime the industrial economy of Detroit, more than that of any other large city in America, has been dominated by the manufacture of consumer durable goods. In the first place, there was a giant automobile industry, which alone would make this true. Secondly, Detroit was a major manufacturer of several other consumer durable goods. Finally, most of the other leading industries in Detroit, although they did not themselves make consumer durable goods, depended directly on firms manufacturing such products for a large part of their business.

The cyclical fluctuations of industries producing consumer durable goods tend to be greater than those of most other industries. They fall to very low levels in depression periods because consumers are able to get along without them by postponing their purchases. In good years, sales are increased by the addition to ordinary sales of those deferred from bad years. This fact helps to explain the extreme fluctuations in the automobile industry compared with all manufacturing as shown in the following table:

Year	All manufacturing, United States	Automobile factory sales, United States	Year	All manufacturing, United States	Automobile factory sales, United States
	(1935-1939=100)			(1935-1939=100)	
1923...	86	105	1932...	57	36
1924...	81	93	1933...	68	50
1925...	90	111	1934...	74	71
1926...	95	112	1935...	87	102
1927...	95	88	1936...	104	116
1928...	100	113	1937...	113	125
1929...	110	139	1938...	87	65
1930...	91	87	1939...	108	93
1931...	74	62			

Source: Federal Reserve Board.

CHART 4

EMPLOYMENT IN MANUFACTURING AND TRADE AS PERCENT OF TOTAL EMPLOYMENT

FIVE CITIES HAVING OVER 1,000,000 POPULATION, 1940

EMPLOYMENT IN MANUFACTURING

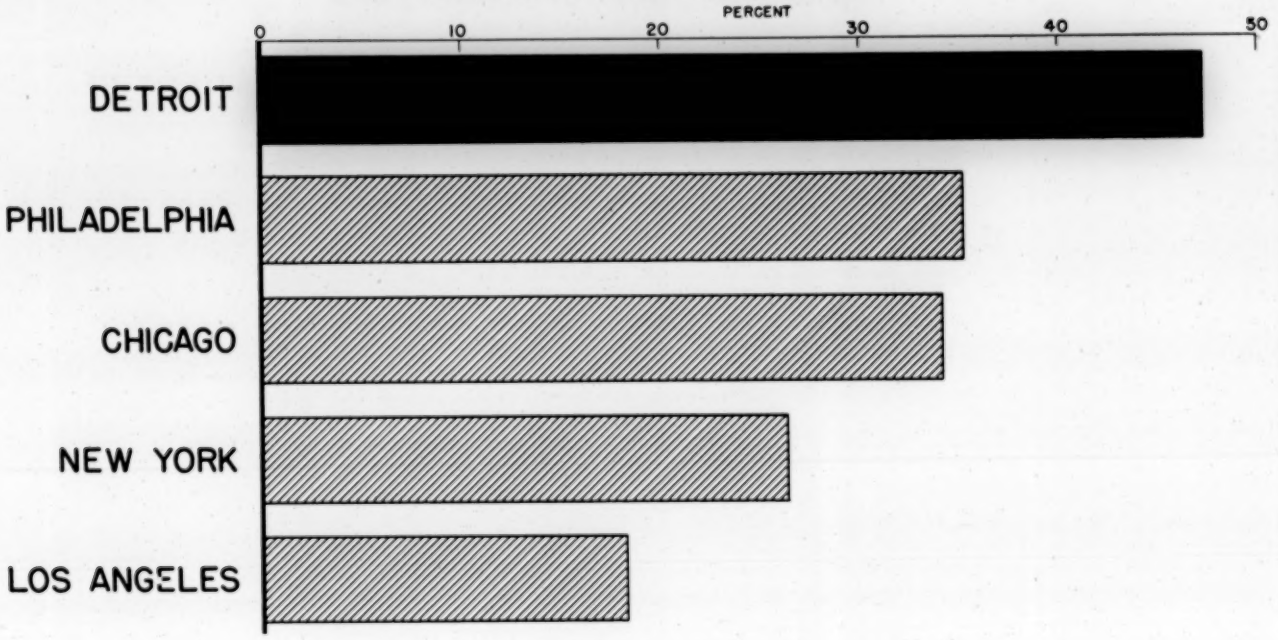

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CHART 5

EMPLOYMENT IN TRADE

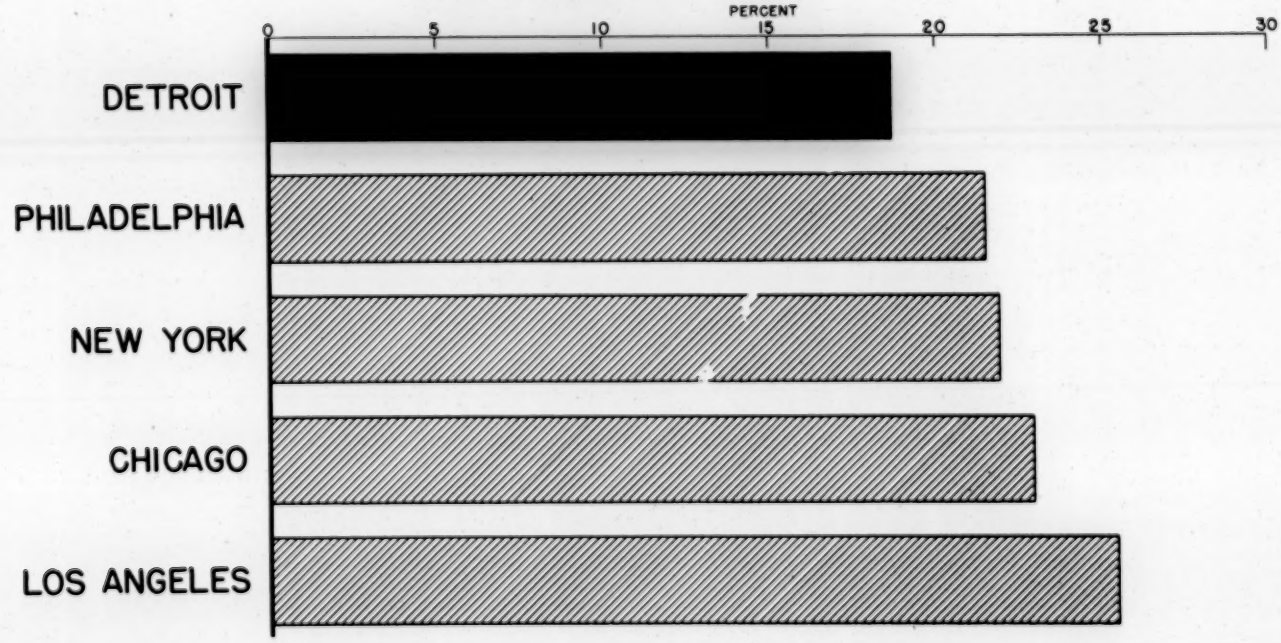

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CHART 6

WORKERS IN MAJOR INDUSTRIES AS PERCENT OF TOTAL MANUFACTURING IN FIVE CITIES, 1940

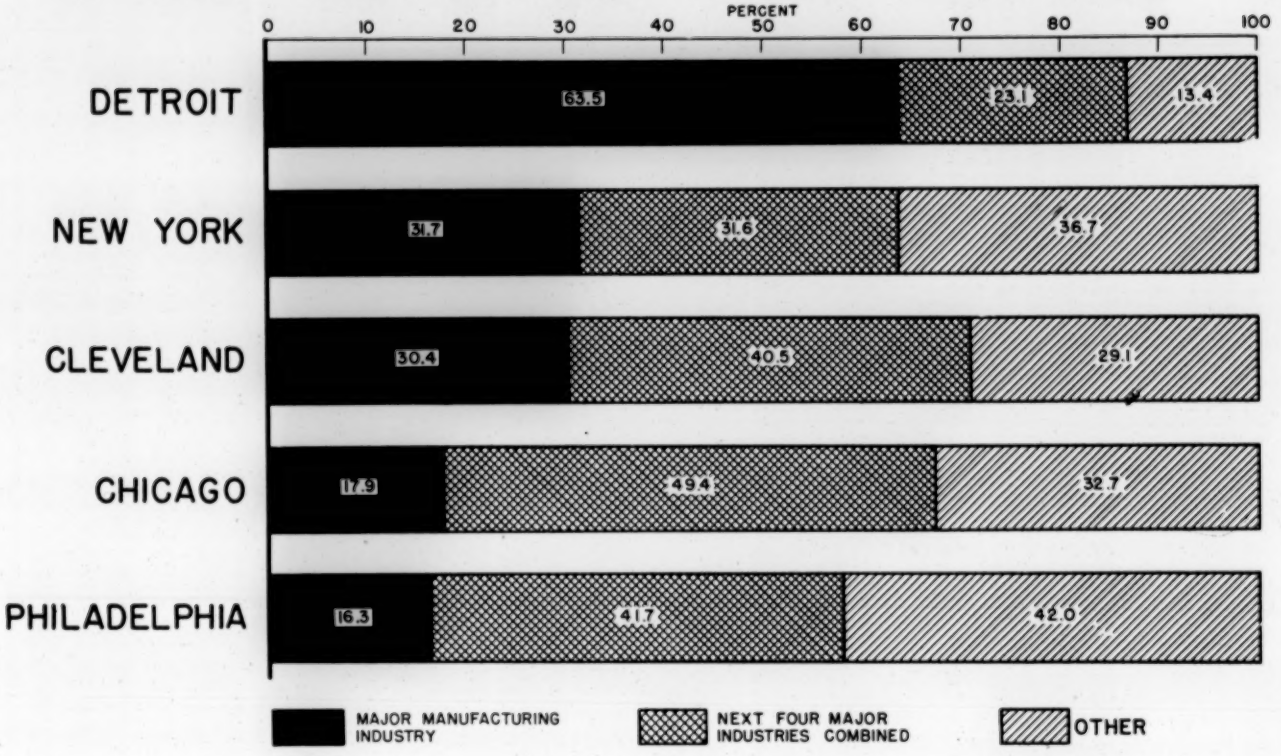

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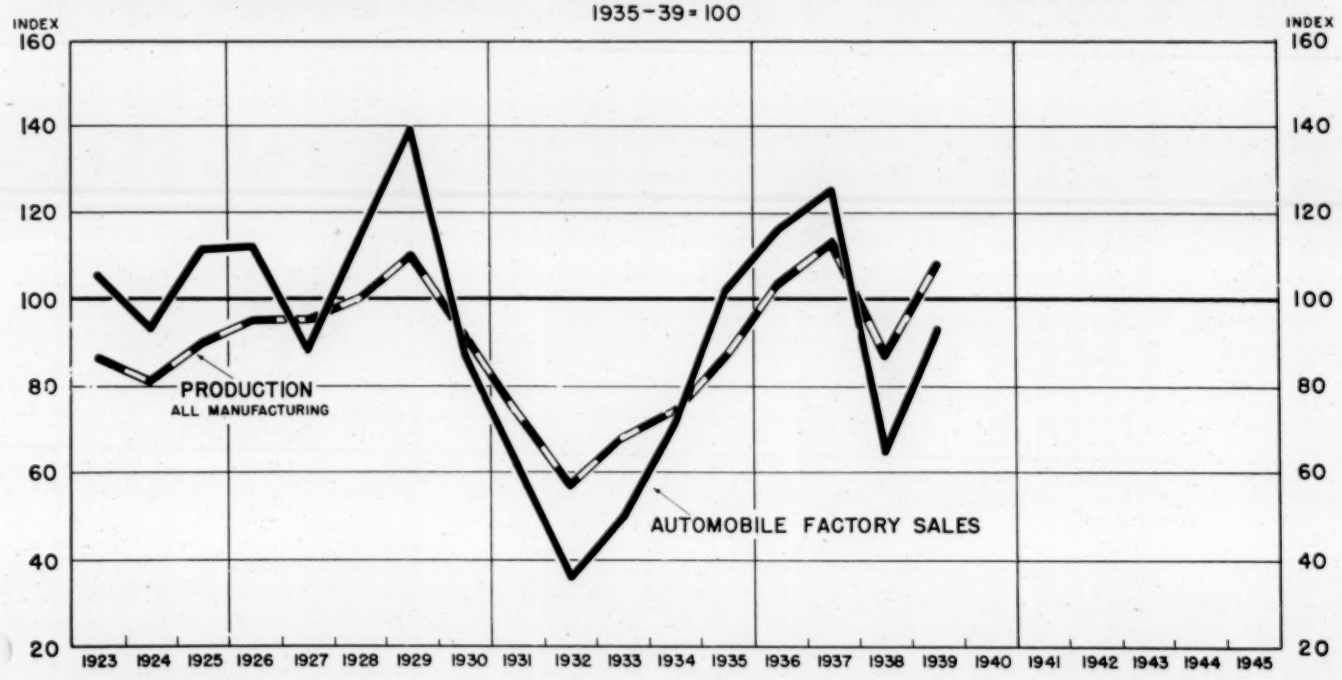
CHART 7

AUTOMOBILE FACTORY SALES, AND PRODUCTION IN ALL MANUFACTURING INDUSTRIES IN THE UNITED STATES



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In the decade of the thirties Detroit lost ground as the most important manufacturing center of the area, particularly to other parts of Wayne County and to a lesser extent to Washtenaw and Macomb Counties. This trend is seen in the declining proportion of the area's manufacturing wage earners in Detroit proper. Glenn E. McLaughlin in his *Growth of American Manufacturing Areas* suggests that these changes were due to a tendency on the part of two of the major automobile producers to locate a greater proportion of their activities outside of the city proper.[1]

Table 4.--Manufacturing Wage Earners in the City of Detroit as a Percentage of Total in the Detroit Industrial Area

Year	Percent
1929.....	74.5
1931.....	64.2
1933.....	61.4
1935.....	55.1
1937.....	53.6
1939.....	54.1

2.--*Trends in wage earner employment.* (Chart 8.)

The susceptibility of the automobile industry to extreme fluctuations has been a most potent factor in Detroit employment trends. Of the five largest manufacturing cities in the country, Detroit showed the greatest percentage decline in manufacturing employment from 1929 to 1933 and the largest proportional rise from 1933 to 1937.

Table 5.--Indexes of Manufacturing Wage Earner Employment in Five Selected Cities

City	1933	1937
	(1929=100.0)	
Detroit.....	57.1	106.2
Chicago.....	61.4	96.5
Cleveland.....	64.5	90.2
New York.....	69.5	89.9
Philadelphia.....	67.8	80.7

In the Detroit Industrial Area the number of manufacturing wage earners in 1939 was well above the 1929 level, both absolutely and as a percentage of total United States manufacturing wage earners. During the 10-year period, the cyclical fluctuations in Detroit were greater than in the United States as a whole. Although the decline in Detroit from 1929 to 1933 was about the same as for the United States, the recovery in Detroit came sooner and the 1937 peak was much higher on a proportionate basis than the level for the United States in that year.

[1] McLaughlin, pp. 131, 188.

Table 6.--Manufacturing Wage Earners in the United States and the Detroit Industrial Area

Year	Number		Index		Detroit as percent of United States
	United States	Detroit	United States	Detroit	
			(1929=100)		
1929.....	9,380,536	297,474	100.0	100.0	3.5
1931.....	6,163,144	212,142	73.5	71.3	3.4
1933.....	5,787,611	205,961	69.1	69.2	3.6
1935.....	7,203,794	352,675	86.0	118.6	4.9
1937.....	8,569,231	439,018	102.3	147.6	5.1
1939.....	7,886,567	336,829	94.1	113.2	4.3

3.--*Value of manufactured products.* (Appendix table D.)

The decline in the value of products manufactured in the Detroit Area from 1929 to 1939 was greater than the decrease in employment, but this was at least partially caused by the fall in the price level. Recovery in industrial production from 1933 to 1937, while not so marked as the increase in employment, was nevertheless greater than for the rest of the country. The value of manufactured products in Detroit was 20 percent greater in 1937 than in 1929 as compared with an 11 percent drop for the Nation as a whole over the same period. Thus, from the point of view of number of manufacturing wage earners as well as value of manufactured products, Detroit improved its relative position over the decade 1929-1939.

4.--*Average number of wage earners per manufacturing establishment.*

The average number of wage earners per establishment in the Detroit Area rose sharply after the depression reaching 160 in 1937 as compared with only 101 in 1929. By 1939, however, it had declined to 109. The long-time trend seems to have been upward with a tendency to drop in years of low production.

5.--*Average value of product per wage earner.*

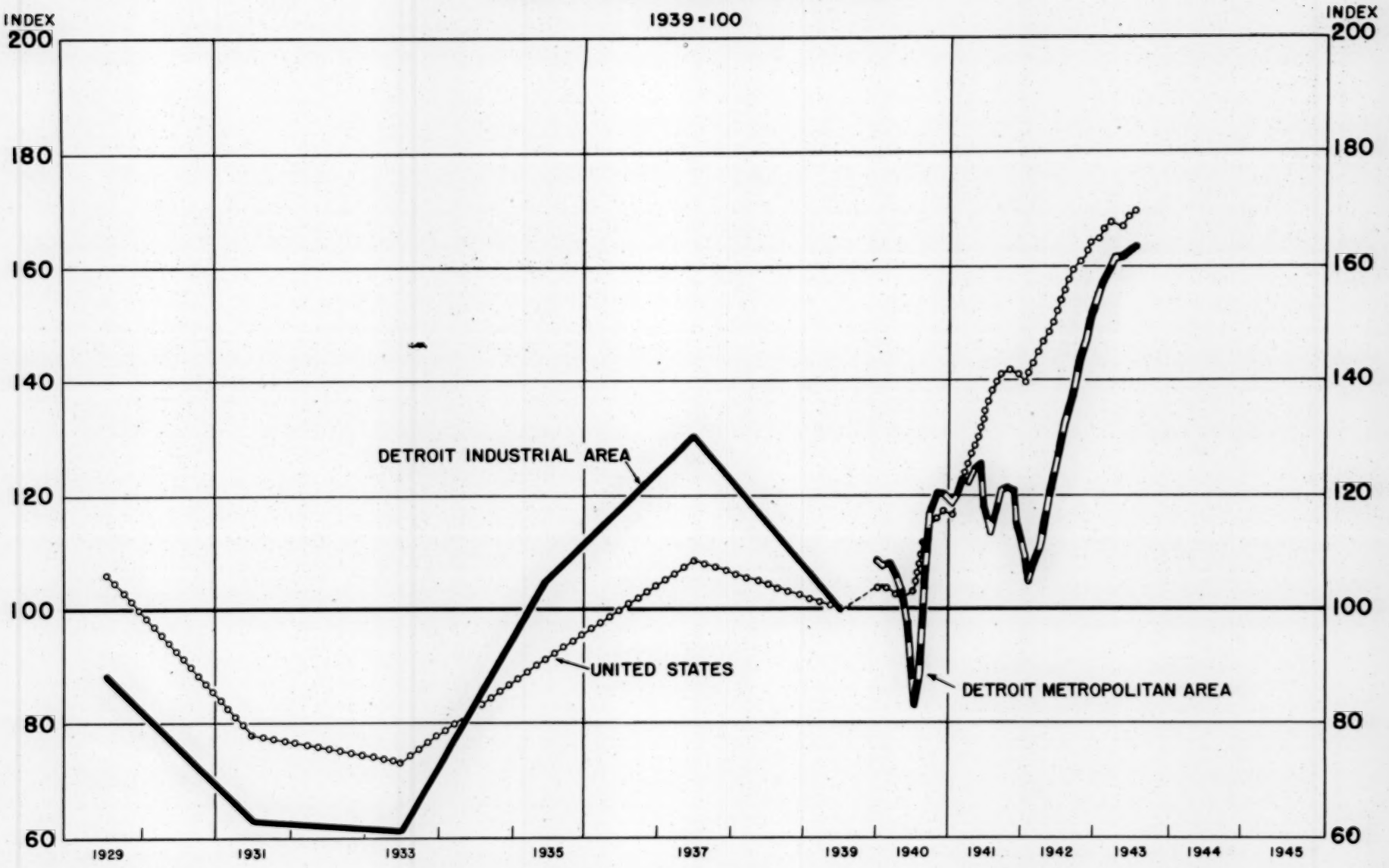
The average value of product per wage earner declined from $9,654 in 1929 to $8,362 in 1939. This compares with a decrease for the United States over the same period from $6,135 to $7,208. Part of the decline over the decade may be attributed to the fall in prices.

Table 7.--Wage Earners per Manufacturing Establishment and Value of Products per Wage Earner, Detroit Area

Year	Average number of wage earners per establishment	Average value of product per wage earner
1929.....	101	$9,654
1931.....	78	7,423
1933.....	97	6,621
1935.....	127	7,673
1937.....	160	7,873
1939.....	109	8,362

CHART 8

MANUFACTURING WAGE EARNERS IN DETROIT AREA AND UNITED STATES



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Source: U.S. CENSUS OF MANUFACTURES AND APPENDIX TABLE 88

D.--LEADING SINGLE INDUSTRIES

[The Detroit Area as discussed in Section II-D-1 to 4 covers only Wayne and Oakland Counties. See Appendix table E.]

1.--*Automobiles.* (Source: *Automotive Industries;* Standard and Poor's *Automobile Facts and Figures;* George N. Fuller, *Historic Michigan;* U. S. Census of Manufactures.)

a.--TRENDS IN THE INDUSTRY AS A WHOLE.

i.--Importance of the industry in the national economy.

While it is true that in peacetime Detroit dominated the automobile world, its output nevertheless represented less than half of the total for the industry. Therefore, it is important to consider the major characteristics of automobile manufacturing in Detroit in the light of the development of the industry as as a whole.

The automobile industry accounted for more than 5 percent of the gross national product in 1939. The output of the industry compares with an estimated gross national product of $77,000,000,000. Almost 400,000 workers were employed in automobile manufacturing establishments in 1939, slightly more than 5 percent of all manufacturing wage earners. Employment indirectly attributable to the automobile industry was even larger. The tremendous importance of our foremost consumers' durable goods industry may be seen in an estimate that in recent years "roughly 1 person in every 7 gainfully employed in the United States has been dependent on the (automobile) industry, directly or indirectly, for a livelihood."[2]

The automobile industry played a very significant role in our economy as a consumer of the products of other industries. It was the largest single consumer of a number of important commodities including rubber, steel, malleable iron, mohair, glass, nickel, and lead. In addition, the owners of motor vehicles constituted the most important outlet for the producers of petroleum products.

According to the Automobile Manufacturers Association, the automobile industry in 1939 accounted for 18 percent of total United States consumption of steel, 51 percent of malleable iron, 80 percent of crude rubber, 75 percent of plate glass, 34 percent of lead, and 23 percent of nickel. In addition, the industry bought considerable quantities of gray iron, aluminum, copper, tin, zinc, glycerine, cotton, leather, and lumber. (Appendix table F.)

ii.--Production trends. (Chart 9 and Appendix table G.)

There were factory sales of 1,652,000 passenger cars in 1919, the first year after the first World War. Sales mounted through the twenties although there were set-backs in such years of low business activity as 1921, 1924, and 1927. The all-time peak was reached in 1929 when more than 4,500,000 cars were sold. In that year, the Federal Reserve Board Index of Factory Sales of Automobiles (1935-1939=100) was 139.

[2] Standard and Poor's Basic Survey, *Automobiles.*

There was a precipitous drop in passenger car sales during the years from 1929 to 1932. In the latter year, there were factory sales of only 1,135,000 cars, barely one-fourth the 1929 level, and the Federal Reserve Board Index fell to 36. From then on sales rose until 1941, when there were sales of 3,744,000. Passenger car production was abruptly ended early in 1942.

Truck sales showed very much the same general trend as passenger cars during the period between the wars except that truck sales in several years after 1936 exceeded the 1929 level. The trend in annual truck sales was as follows:

YEAR	NUMBER
1919.....	224,731
1929.....	771,020
1932.....	235,187
1941.....	1,094,261

iii.--Employment. (See chart 10 and Appendix table H.)

Almost 343,000 wage earners were employed by the automobile industry in 1919. The number dropped to a post-war low of 213,000 in 1921. Following the 1921-1922 depression, it rose until in 1929 there were almost 450,000 workers employed in automobile production. During the depression of the thirties, employment in the industry dropped by almost half, reaching a low of 244,000 workers in 1932 and 1933. Except for a brief but precipitous drop during the 1937-1938 recession, automobile employment rose from 1933 on reaching an all-time peak of more than half a million workers in 1941.

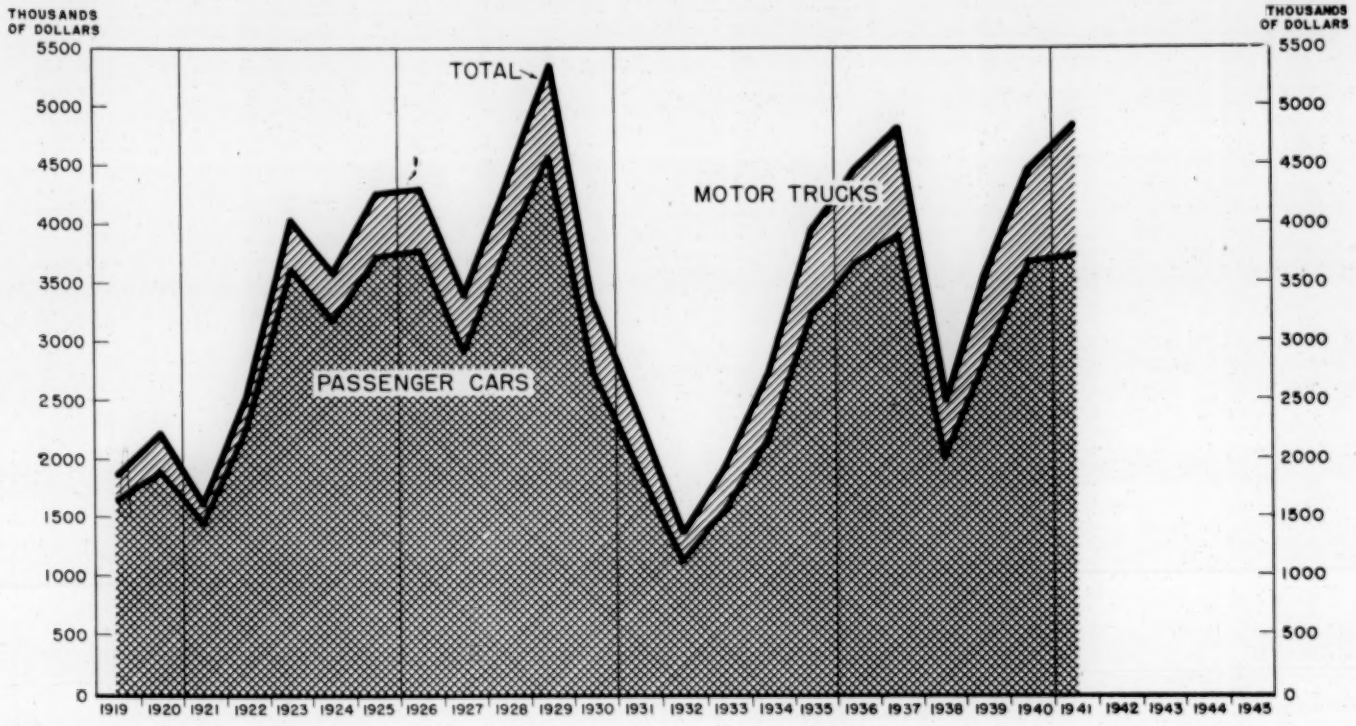
Changes in pay-rolls closely followed those in employment but tended to be much sharper than the latter. Pay-rolls in the industry were slightly less than half a billion dollars in 1919. There was an increase over the decade 1919-28 inclusive of about 50 percent, pay rolls reaching almost $750,000,000 in 1928. From then until 1933, they decreased until in that year they were only slightly more than one third of the 1928 level. The rise from 1933 on was rapid, and in 1941 pay rolls of the automobile industry were more than $1,000,000,000 or 25 percent more than the predepression peak.

iv.--Productivity. (Appendix table J.)

Since 1919, output per wage earner in the automobile industry has more than doubled and output per man hour has almost tripled. The greatest gains were made during the twenties, reflecting the development of the industry during that period into America's foremost mass-production industry. Although there was a decline in productivity during the depression years, it was not very great, With 1929 as the base year, the index of output per man-hour was still 82.4 percent in 1932. During the recovery period, productivity increased although not as much as in the pre-depression years. By 1940 the index of output per wage earner was not quite up to the 1929 level, but the index of output per man-hour, a more significant measure of productivity, was 20 percent greater than it was in 1929.

ART 9

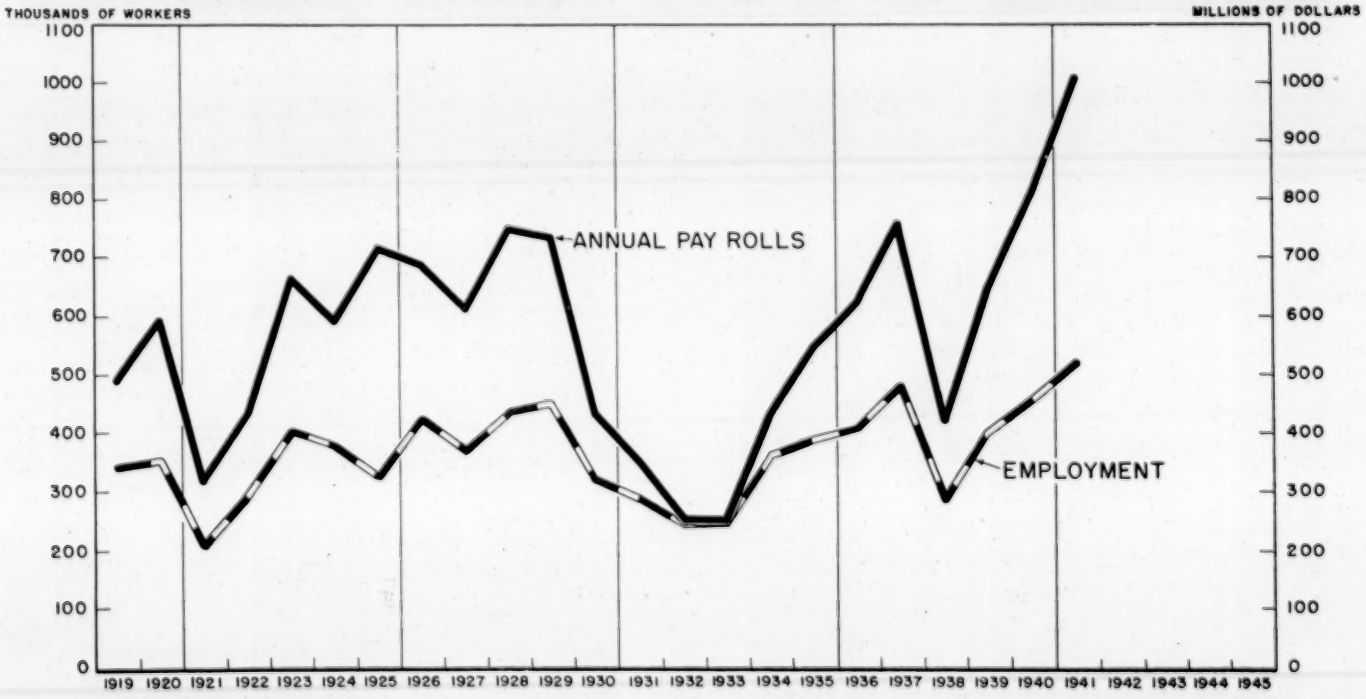
FACTORY SALES OF AUTOMOBILES IN THE UNITED STATES



DATA IN APPENDIX TABLE G

CHART 10

AVERAGE EMPLOYMENT AND ANNUAL PAY ROLLS IN AUTOMOBILE MANUFACTURING IN THE UNITED STATES



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DATA IN APPENDIX TABLE H

v.--Leading firms. (Appendix tables K and L.)

From 1933 on three companies--General Motors, Ford, and --Chrysler--obtained about 90 percent of the domestic auto sales. These companies led both in the low-price and in the medium-price markets. Among the low-price cars, General Motors' Chevrolet, Ford's Ford, and Chrysler's Plymouth were predominant. In the medium-price range, the largest sales were made by General Motors' Buick, Pontiac, and Oldsmobile; Ford's Mercury and Lincoln-Zephyr; and Chrysler's Chrysler, Dodge, and DeSoto. Other than the "Big Three", Nash, Packard, and Studebaker made the best showing in recent years.

In the main, the so-called "independent" manufacturers tended to concentrate their production in the high-price field, and it is here that there was the most unutilized capacity. During the thirties medium-price and high-price cars waned in importance. Medium-price autos, represented roughly by those within the range $751-1,500, accounted for almost one-fourth of all cars sold in 1926 but for only a little more than 10 percent in 1939. High-price cars, those selling at wholesale for more than $1,500, were almost 5 percent of the total in 1926 but declined to less than three-tenths of one percent by 1939.

There are other reasons why the independents lost ground. The three dominant companies had such flexible engineering and distributive organizations that they were able to shift their emphasis very quickly to whatever price range was most popular. Thus, in the early thirties, they concentrated in the range below $500, but with the coming of the recovery period in the middle and late years of the decade they turned to the $500-$750 range. Finally, the Big Three had the advantage of larger dealer organizations and stronger financial resources.

In the truck field the largest companies were again General Motors, Ford, and Chrysler plus the International Harvester Company, the leading manufacturer of agricultural machinery. As in the passenger car field, the largest market was for cheaper, lighter trucks, and the four companies concentrated on production of this type. The so-called specialists manufactured mainly heavier trucks although in the years just before the war smaller models accounted for an increasing proportion of the output of truck specialists.

b.--THE AUTOMOBILE INDUSTRY IN DETROIT..

i.--Overwhelming importance in the economy of the area.

Before the war Detroit was the largest one-industry city in America. The manufacture of automobiles and related products completely dominated the city and Detroit dominated the industry. In 1939, 61.5 percent of the manufacturing wage earners in the area were engaged in producing motor vehicles, bodies, parts, and accessories, and Detroit Area plants produced 41 percent of the total national output.

No other local industry accounted for as much as 5 percent of either the total value of products or the manufacturing employment of the area, and most of the industries which played anything like a significant role in Detroit's economy were to

a large extent dependent on automboile output. Thus, firms producing nonferrous metals, stamped and pressed metal products machine tools, paints and varnishes, and steel--most of which probably derived a large part of their business from automobile production--accounted for 11 percent of all manufacturing employment in the Detroit Area in 1939. Of the few industries of any consequence which were largely independent of the motor trade, the most important were wholesale meat-packing, malt liquors, bread and bakery products, and printing and publishing of newspapers and periodicals.

ii.--Development of the industry in Detroit.

There do not seem to have been any compelling reasons why automobile manufacturing should have been located at Detroit. To be sure, certain favorable factors were present about the turn of the century. Detroit and the surrounding Michigan cities had an important carriage and wagon industry and had already begun the production of marine gasoline engines. Other industries important for the growth of automobile manufacturing already flourishing in the area were iron and steel, nonferrous metals, foundry and machine shops, and paints and varnishes. On the other hand, such cities as Cleveland, Chicago, and Toledo also had geographic advantages. Like Detroit these cities had access to water transportation through the Great Lakes System.

It would seem, therefore, that institutional factors rather than natural ones were primarily responsible for the location of the automobile industry in Detroit, but that once situated there, the city provided a highly suitable place for its growth.

The dominant trends in the industry have tended to favor Detroit. It will be seen from the following list of cars and trucks being made in the Detroit Area in 1940 that not only did the city dominate the industry as a whole but all of the stronger firms (except International Trucks) and very few of the weaker independents were located in the Detroit Area.

Passenger cars:

Cadillac	Cadillac Motor Div., General Motors
Pontiac	Pontiac Motor Div., General Motors
G. M. C. cabs	Yellow Truck and Coach Mfg. Co. (General Motors subsidiary)
Chrysler	Chrysler Corp.
De Soto	De Soto Div., Chrysler Corp.
Dodge	Dodge Div., Chrysler Corp.
Plymouth	Plymouth Div., Chrysler Corp.
Ford	Ford Motor Co.
Mercury	Ford Motor Co.
Lincoln	Lincoln Motor Co., Div. of Ford Motor Co.
Hudson	Hudson Motor Car Co.
Packard	Packard Motor Car Co.

Trucks:

Dodge Bros.	Div. of Chrysler Corp.
Ford	Ford Motor Co.
G. M. C.	Yellow Truck and Coach Mfg. Co. (General Motors Subsidiary)
Federal	Federal Motor Car Co.
Hudson	Hudson Motor Car Co.

It will be seen from the above list that two of the three largest selling cars in the low-price field and two of the four most popular makes of trucks were manufactured in the Detroit Area.

The improved position of Detroit firms relative to the rest of the automobile industry may be seen from a comparison of the situation in 1929 and in 1939. In the earlier year, the motor vehicles and accessories industry of the Detroit Area produced 31.8 percent of the total value of products of the industry and employed 35.4 percent of the industry's wage earners. A decade later, it contributed 41.0 percent of the value of products and accounted for 48.0 percent of the wage earner employment. Detroit's relative position was even more favorable in 1933, a depression year, than in 1939, indicating the greater strength of Detroit's sector of the industry.

Table 6.--Detroit Industrial Area as a Percentage of United States Totals, Motor Vehicles and Motor Vehicle Bodies, Parts and Accessories

Year	Wage earners	Value of products
1929.....	35.4	31.8
1933.....	51.8	52.1
1939.....	48.0	41.0

2.--*Steel works and rolling mills.*

Detroit's steel works and rolling mills constitute her second most important manufacturing industry. In 1937 they employed 18,000 workers and had a value of products of $112,000,000. The latter represented 3.4 percent of the national product of the industry and 3.3 percent of the value of all manufactures in the Detroit Area.

Fabrication of iron and steel is relatively new in Detroit, the first rolling mill in the area having been established in 1923. Owing to the needs of automobile manufacturers for large quantities of steel and the relative proximity of the upper Michigan and Minnesota iron ore deposits, the steel industry in the area has had a fairly rapid growth. Other important factors in the development of steel in Detroit were the nearby supply of good limestone, the existence of a ready source of scrap in the automobile industry itself, and the trend toward the all-steel car.

Between 1929 and 1937 the value of products of the steel works and rolling mills in the Detroit Area more than doubled, and their contribution to the United States total output increased from 1.6 to 3.4 percent.

During the war, production has been kept at a high level because of the large quantities of steel and iron used in tanks and other ordnance equipment manufactured in Detroit.

3.--*Machine tools.*

Another satellite of automobile manufacturing in the area is the machine tools industry. From 1929 to 1939, Detroit produced from 13.1 to 23.8 percent of the total value of products in the machine tools industry.

The industry in Detroit is closely related to motor car manufacturing and this is probably why its production trends follow those of automobiles closely in direction although with more violent ups and downs. Like the automobile industry, machine tools in Detroit have bulked larger in the national picture in depression years than in good years. This is to be expected because in Detroit the industry specialized in consumers goods, automobiles, whereas elsewhere it has been largely devoted to producers goods, namely, other types of machinery.

4.--*Nonferrous metals.*

The nonferrous metals industry in the Detroit Area has tended to decline somewhat in recent years relative to the remainder of the industry. In 1929 it produced 8.7 percent of the total national value of products for the Census industry "nonferrous metal alloys, nonferrous metal products, except aluminum, not elsewhere classified," but in 1937 it produced only 8.2 percent. An absolute decline took place during the same period from $79,000,000 to $55,000,000.

Nonferrous metals in Detroit also depend very much on automobile output. The reason for the decline in recent years is probably that the large automobile companies have sought to develop nonferrous metals fabricating plants outside of the Detroit Area.

5.--*Other manufacturing.*

No other manufacturing industry accounted for even 5 percent of either the manufacturing employment or the value of products in the area in 1939. A number of the lesser industries were largely dependent on the automobile: Nonferrous metal producers, manufacturers of metal products, paints and varnishes, etc. In addition to these there were in the area a number of important concerns whose total employment was not great, manufacturing such items as drugs, refrigerators, business machines, vacuum cleaners and rubber products. Finally, there was a group of manufacturing industries which are generally important in any large city: Meat packing, newspaper publishing, and malt liquors.

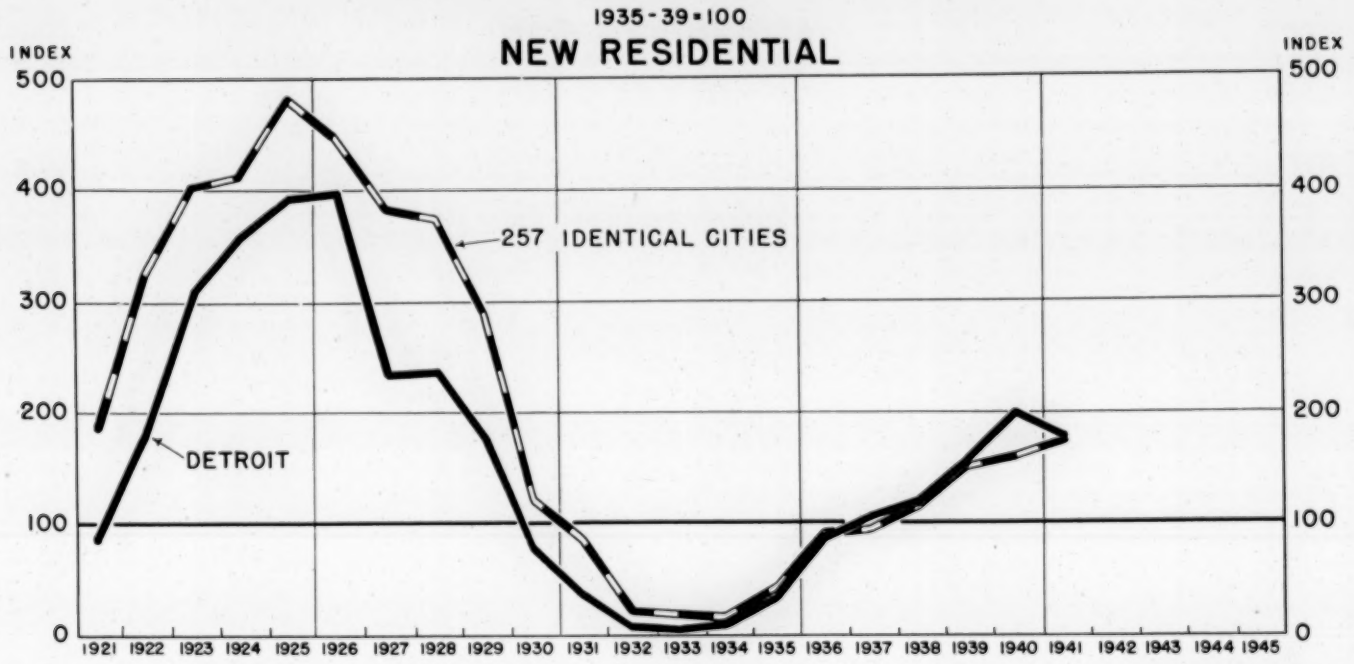
6.--*Construction.* (Charts 11 and 12 and Appendix table M.)

As shown by the Bureau of Labor Statistics index of permit valuation, residential building construction in Detroit had overtaken predepression levels by 1940, but nonresidential building was still far short of the 1929 level. Although there are very marked cyclical fluctuations in building activity in the 257 cities for which data are available, this tendency is more extreme in Detroit than for the average of these cities.

CHART 11

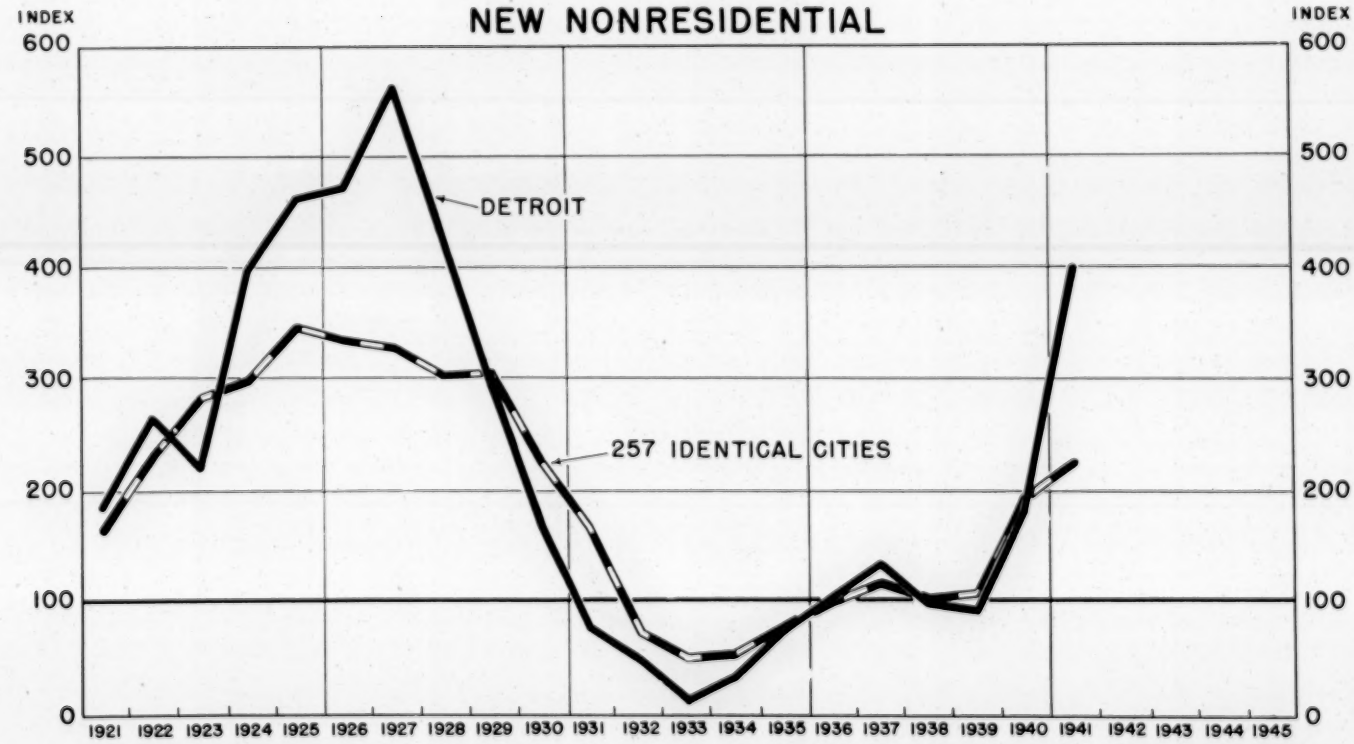
PERMIT VALUATION OF NEW RESIDENTIAL AND NEW NONRESIDENTIAL BUILDING IN DETROIT

COMPARED WITH 257 IDENTICAL CITIES



DATA IN APPENDIX TABLE M

CHART 12



DATA IN APPENDIX TABLE M

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7.--*Retail trade.* (Source: U. S. Census of Retail Trade, 1929-1939. See Appendix table N.)

a.--EMPLOYMENT AND SALES:

Among the five largest cities, Detroit and Los Angeles (it should be remembered that Los Angeles had a greater population growth during the decade 1930-1940 than any of the other cities) were the only ones in which employment in retail trade rose appreciably over the 10-year period from 1929 to 1939. The increase for the Detroit Industrial Area was 14.7 percent, a higher figure than that for the city of Detroit.

Table 9.--Percent Change in Employment and Sales in Retail Trade, 1929-1939

Area	Percent change in	
	Employment	Sales
Detroit.....	+9.7	-25.2
Chicago.....	- 5.2	-28.8
Los Angeles.....	+16.5	-10.6
New York.....	+1.2	-25.3
Philadelphia.....	-16.4	-29.3

Although employment in the retail establishments of Detroit showed an appreciable rise over this period, dollar sales declined partly because of the decline in prices. This was true not only in the city but also in the Detroit Industrial Area. In Detroit proper retail sales dropped by about one-fourth, but the drop in the entire area was only one-fifth.

b.--SALES PER EMPLOYEE AND PER STORE.

Retail sales per person engaged (proprietors and employees) decreased in Detroit from $10,080 in 1929 to $6,869 in 1939. Similar declines have taken place in other large cities.

Although sales per establishment declined in Detroit in the thirties, they still remained higher than in any of the other four cities in the same size class. The average sales of Detroit retail establishments in 1939 were $33,540.

Table 10.--Retail Sales per Store 1929 and 1939

City	1929	1939[a]
Detroit.....	$51,849	$33,540
Chicago.....	48,623	31,670
Los Angeles.....	48,932	31,907
New York.....	41,487	27,709
Philadelphia.....	31,989	25,470

[a]Does not include service garages.

C.--NUMBER OF ESTABLISHMENTS AND PROPRIETORS.

Despite the decline in sales, both the number of retail stores and the number of proprietors rose during the 10-year period 1929-1939 in all of the 5 cities with population of 1,000,000 or more, except in Philadelphia. This reflects a tendency for unemployed persons to turn to storekeeping when other employment opportunities are lacking. Retail stores in Detroit increased from 17,189 to 19,844 and the number of active proprietors rose from 15,091 to 17,116.

E.--LABOR PATTERNS

1.--*Labor pattern for the leading industry.* (Appendix table O.)

An example of a labor pattern for the leading Detroit industry, automobile manufacturing, is given in Appendix table O. Basic material from which to develop similar patterns for a number of other industries is available in the Bureau of Labor Statistics, Division of Wage Analysis.

The automobile industry is characterized by a high degree of mechanization, and the labor force, therefore, includes relatively large numbers of semi-skilled workers. Because of the considerable overlapping in the degree of skill required in many of the occupations, no exact breakdown by skill was made in a survey of the industry made by the Bureau of Labor Statistics in 1940. For this reason, the occupations were grouped according to manufacturing department.

No single occupation accounted for as much as 10 percent of the industry's employment in 1940. Some 23,500 workers, approximately 7 percent of the total number, were body assemblers and trimmers. Other important occupations were chassis and final assemblers, handtruckers and material handlers, tool and die makers, and punch and press operators.

2.--*Construction of labor patterns.*

Labor patterns are constructed on the basis of data obtained from field surveys of the industry made by the Bureau of Labor Statistics. A sample of the plants of the industry is surveyed, and pay-roll data are gathered in each sample plant. The percentage of employment in each occupation to total employment is then calculated.

3.--*Usefulness and limitations.*

a.--USEFULNESS.

Labor patterns of an area's major industries, applied to wage earner employment statistics, can be used to determine the skill composition of the local labor force; and patterns may be used in estimating the number of workers in each occupation who would be needed in case of a given amount of expansion or contraction, or of a new operation, in any area. They may also be used to estimate in advance of a partial shutdown the occupational distribution of workers to be displaced. This might serve as a guide to the selection of public works projects, although of course community needs and the availability of materials would also have to be considered. In these applications, patterns also can be used for anticipating the need for training or transfer of workers.

b.--LIMITATIONS.

The industry studied may sometimes be composed of subindustries sufficiently different from each other to include different types of occupations. A fine industry classification, while valuable, offers greater possibility of error than do broader divisions.

Similarly, fine occupational classifications, while providing patterns of greater detail, must be used with caution. Technology varies from plant to plant in almost all industries with resultant variations of occupational patterns. The finer the classification the greater becomes the significance of these differences.

Section III

SELECTED FACTORS AFFECTING INDUSTRY

A.--NATURAL RESOURCES

1.--*Agriculture.* (Source: Information received from U. S. Department of Agriculture; U. S. Census of Agriculture, 1940.)

a.--TYPE OF FARMING.

Dairy products were the most important cash crop in 1939 in the 4-county group comprising the area. The Census reports that in 1939 dairy products represented the major source of income for nearly a quarter of the 14,197 reporting farms in the area. Other important cash crops in the area were field crops (such as hay and corn), vegetables, and livestock.

It is significant, however, that the largest group of farms reported "farm products used by farm households" as the major source of income rather than any one cash crop. There were 4,741 such farms in the area and this group was also largest in 2 of the individual counties, Oakland and Wayne.

Table 11.--Farms in the Detroit Area in 1939 by Major Source of Income

Source	Percent of farms
Total	100.0
Farm products used by farm households	33.4
Dairy products	23.5
Field crops	11.8
Livestock	9.7
Vegetables	7.1
Fruits and nuts	4.0
Other cash crops	10.5

Data in Appendix table F.

b.--FARM INCOME.

The average farm income per rural farm inhabitant in the Detroit Area was $273.81 in 1939. This compares with an average for the United States of $258.59. However, the variation among the four counties was quite great, ranging from $235.78 in Wayne County to $341.71 in Washtenaw. The two most highly urbanized counties, Wayne and Oakland, had the lowest farm incomes per rural farm inhabitant. It is also significant that they were the counties in which the largest number of farms reported that the major source of income was from farm products used by farm households and in which the largest percentage of farm operators reported work off the farm. It would seem, therefore, that many of the farm inhabitants in these counties have been engaged in nonagricultural occupations and that they have depended pretty largely for their sustenance upon what they could grow for consumption on the farm plus earnings derived from nonagricultural pursuits.

Table 12.--Rural Farm Population and Gross Farm Income

Area	Rural farm population 1940	Gross farm income 1939 ($000)	Gross annual farm income per rural-farm inhabitant
United States total.	30,216,188	7,813,645	$258.59
4-county area.....	68,282	18,676	273.51
Macomb.....	17,868	5,145	287.95
Oakland.....	19,300	4,604	238.54
Washtenaw.....	15,021	5,133	341.71
Wayne.....	16,093	3,794	235.78

Source: U. S. Census of Population, 1940 and U. S. Census of Agriculture, 1940.

2.--*Minerals.* (Source: *Minerals Yearbook*, 1940.)

[There are few if any mineral resources in the Detroit Area itself except for a sizable clay deposit, a limestone quarry, and a salt deposit covering an area of 2 square miles in Wayne County. However, proximity to several mineral areas has played a large part in making Detroit a leading industrial city.]

a.--IRON.

Most important are the iron mines in the Marquette, Gogebic, and Menominee regions in the upper peninsula of the State, and in Minnesota. Michigan is the largest producer of iron ore from underground mines and is second only to Minnesota in total production of iron ore. A total of 13,751,970 gross tons of iron ore, valued at $40,474,951, was shipped from the State in 1940. A report of the Geological Survey Division of the Michigan Department of Conservation states that the average employment in Michigan iron mines in 1940 was 6,743.

[Also important to Detroit industry is the fact that the major portion of the iron ore mined in the Mesabi Range of Minnesota must come down the Lakes past Detroit.]

Table 13.--Iron Ore Shipped in 1940

Area	Gross tons	Value
United States.....	75,198,084	$189,086,799
Michigan.....	13,751,970	40,474,951
Minnesota.....	47,904,137	118,947,968
Other.....	13,541,977	29,663,880

Source: *Minerals Yearbook*, 1940

b.--COPPER.

Michigan is also an important producer of copper, although copper is now nearing exhaustion. In 1940 Michigan produced 91,488,806 pounds of copper from domestic ores or 5.0 percent of the total for the Nation. In that year, Michigan was the sixth most

important copper producing State. From 1845 to 1940, however, Michigan accounted for 16.7 percent of the total smelter output of copper and was exceeded only by Arizona and Montana.

Table 14.--Copper Produced from Domestic Ores in the United States and Selected States, 1940

State	Pounds
United States.....	1,818,137,516
Arizona.....	574,533,050
Utah.....	497,463,560
Montana.....	258,141,139
Nevada.....	157,241,576
New Mexico.....	140,968,734
Michigan.....	91,486,806
Other.....	98,332,651

Source: *Minerals Yearbook*, 1940.

c.--MAGNESIUM.

In 1940 Michigan was the sole producer of the brine from which magnesium metal is made. The total production in that year (12,521,726 pounds) came from the underground wells of the Dow Chemical Co., located near Midland in the central part of the State. Since then, however, magnesium production has begun in other parts of the country.

d.--OTHER MINERALS.

Michigan is also a minor producer of coal, silver, manganese, natural gas, and petroleum.

B.--TRANSPORTATION

1.--*To other areas.* (Source: *Editors and Publishers Market Guide*, 1942.)

Detroit is served by 9 railroads, more than 50 steamship companies, 5 bus lines, and 2 air lines. The city is situated on U. S. Highway Routes 112, 24, 25, 16, 12, and 10. Numerous well-built county and State roads radiate from Detroit and cover the entire State, and 2 tunnels (a railroad tunnel and a tunnel for vehicular traffic) and a bridge connect Detroit with Canada. The Detroit Area has a water-front of 24 miles, 10 of which are in Detroit proper.

2.--*Within the area.*

Detroit has the largest municipally owned system of street transportation in the country. In 1940 it operated 909 street cars and 1,597 motor coaches, serving an area of 144 square miles.

C.--PUBLIC UTILITIES

1.--*Power and light.* (Source: *Editor and Publishers Market Guide*, 1942; Federal Power Commission, *Electric Power Requirements and Supply in the United States*, January 1943; and *Typical Electric Bills, Cities of 50,000 Population and More*, 1942.)

a.--SOURCE:

The Detroit Edison Company does the entire commercial lighting and industrial power business in 40 cities, 87 incorporated villages, and unincorporated communities and rural areas in 217 townships in southeastern Michigan. The population of the area served was estimated at 2,538,000 in 1940. Almost all of the generating capacity of this system comes from three small steam plants and seven small hydraulic plants.

b.--SUPPLY.

In January, 1943 the net assured capacity of power plants in Power Supply Area 11, covering all of Michigan except small sections in the southwest and northwest parts of the State, was 23.2 percent above actual peak demand. A somewhat smaller surplus of 7.7 percent was forecast for December 1943.

c.--RATES. (Appendix tables Q and R.)

Electricity rates for residential service in Detroit were about average, as compared with four other large cities in the Great Lakes Region. Rates for industrial power, however, were in general considerably higher than in the other cities.

2.--*Water supply.* (Source: *Detroit City Directory.*)

Detroit is served by 2 pumping stations having a daily average capacity of 460,000,000 gallons. They supply water to approximately 2,000,000 people in an area of 241 square miles. There is an average daily consumption of 253,236,700 gallons or about 127 gallons per capita.

3.--*Sewage.* (Source: *Detroit City Directory.*)

A sewage treatment plant completed in 1940 now serves 1,600,000 people. It was expected to be adequate until the population reached 2,400,000. Detroit's sewage was formerly emptied into the Detroit and Rouge Rivers.

D.--WAGE SCALES

(Source: U. S. Bureau of Labor Statistics, *Hourly Entrance Rates Paid to Common Laborers*, July 1942.)

1.--*Entrance wage rate for common labor.* (Appendix table S.)

In July 1942, a Bureau of Labor Statistics survey indicated that Detroit ranked first among the five cities of 1,000,000 and over and fifth among the 37 cities of 250,000 and over in average hourly entrance rates of adult male common laborers for a group of selected industries. These industries included the manufacture of auto parts but not motor vehicle manufacturing itself, and therefore the Detroit picture is not really adequately presented. Of the cities over 250,000 the four cities paying the highest entrance rates in manufacturing were all on the Pacific Coast.

For specific industries, Detroit's rank among the 37 cities of 250,000 or more was as follows:

16 manufacturing industries..	5th
Foundry and machine shop..... products.....	5th
Building construction.....	13th

The average hourly entrance rate for Detroit was 77 cents, as compared with a national hourly average of 56 cents.

2.--*Building trades rates.* (Appendix table T.)

In July 1942 Detroit ranked about mid-way among the 5 cities of 1,000,000 or more population in rates paid to its building trades workers in several important occupations.

Section IV

POPULATION

(Source: U. S. Census of Population, 1940.)

A.--TOTAL POPULATION

(Appendix Table U.)

The total population of the 4 counties comprising the Detroit Area was 2,458,139 in 1940. Approximately two-thirds of the people in the area were in the city of Detroit. Slightly less than one-half of the rest were in the remainder of Wayne County and slightly more than one-half in Macomb, Oakland, and Washtenaw Counties.

Table 15.--Population of the Detroit Industrial Area, 1940

Detroit Area	Number
Detroit Area.....	2,458,139
Wayne County.....	2,015,623
City of Detroit.....	1,623,452
Remainder of Wayne.....	392,171
Macomb County.....	107,638
Oakland County.....	254,066
Washtenaw County.....	80,810

Source: U. S. Census of Population, 1940.

In 1940 the population of the Detroit Area was five times greater than in 1900. This large increase took place mainly in the twenties. However from 1930 to 1940 the rate of increase declined. The war boom has stimulated a new growth in population. (Chart 13.)

Table 16.--Population Growth

Year	United States urban	Detroit Area	Detroit
	(1939=100)		
1900.....	100.0	100.0	100.0
1910.....	138.8	138.7	163.0
1920.....	179.8	285.6	347.8
1930.....	227.0	472.6	549.1
1940.....	245.0	518.0	568.2

Source: U. S. Census of Population, 1910 and 1940.

B.--URBAN AND RURAL POPULATION

In 1940, 88 percent of the area's population was urban (inhabitants of towns of 2,500 or more population). Nine percent was rural nonfarm, and only 3 percent lived on farms. Urban population as a percentage of the total population was as follows in 1940:

DETROIT AREA	PERCENT
Wayne.....	95.7
Macomb.....	44.8
Oakland.....	56.3
Washtenaw.....	51.9

C.--RACE AND NATIVITY

Native born whites comprised 75 percent of the population of the area but only 71 percent of the population of the city of Detroit. The proportion of both the Negro and the foreign-born white population of Detroit was approximately the same as for 12 cities of 500,000 or over (including Detroit but excluding the west coast cities of Los Angeles and San Francisco). The Negro population of Detroit in 1940 was 9.2 percent and the foreign-born white population was 19.7 percent. Poland and Canada were the countries of origin of the 2 largest foreign-born groups. Both the Negro and the foreign-born groups were concentrated in Wayne County.

Table 17.--Negroes and Foreign-born Whites in Selected Areas, 1940

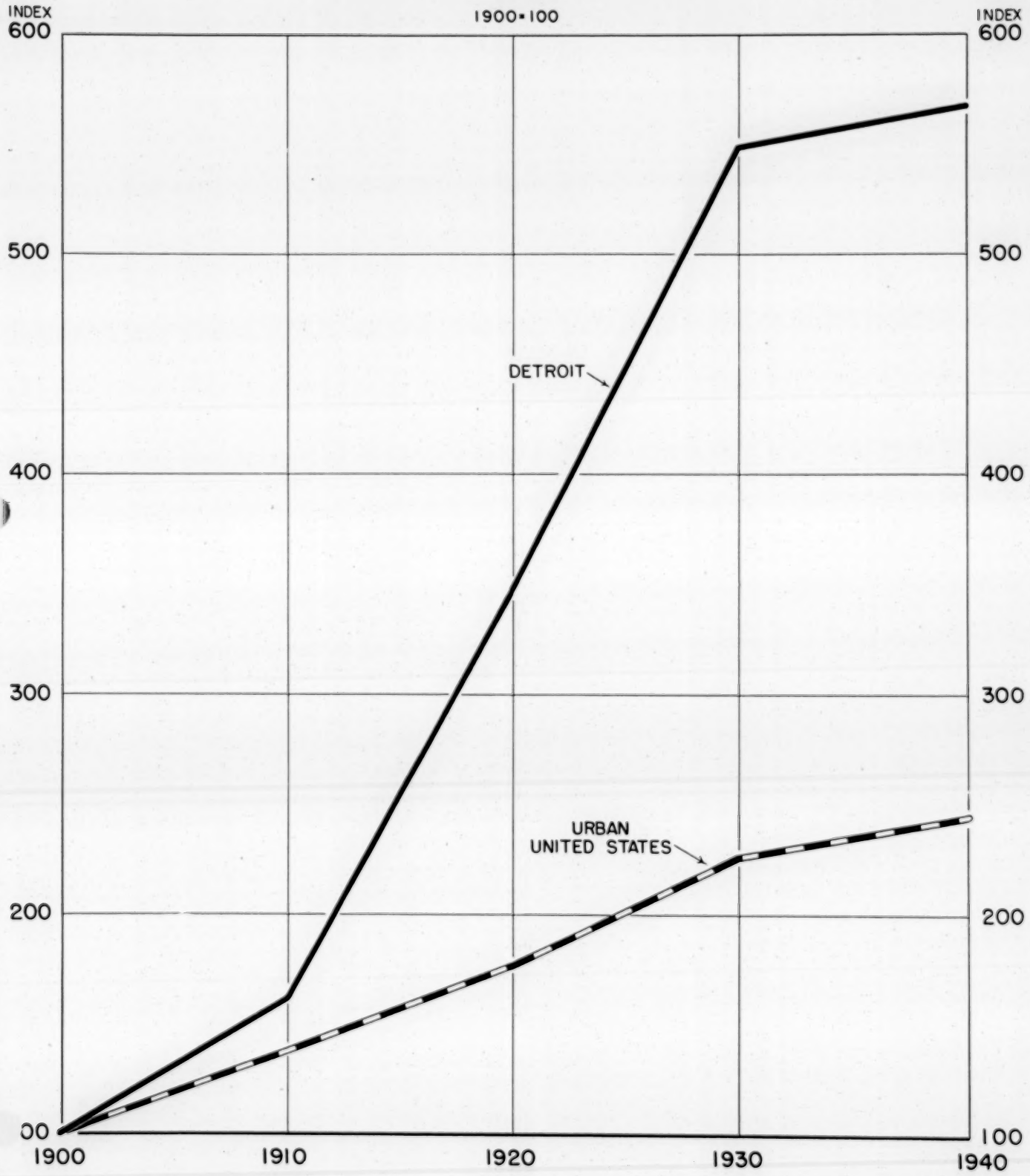
Area	Negro	Foreign-born white
	(Percent)	
United States.....	9.8	8.7
12 cities of 500,000 and over[1].	8.9	20.7
City of Detroit.....	9.2	19.7
Detroit Industrial Area.....	7.1	17.9
Wayne.....	8.1	19.5
Macomb.....	2.0	12.6
Oakland.....	2.1	11.0
Washtenaw.....	4.5	8.1

Source: U. S. Census of Population, 1940.

[1] Includes Detroit but excludes west coast cities of Los Angeles and San Francisco.

CHART 13

POPULATION GROWTH IN DETROIT AND URBAN UNITED STATES



UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

DATA IN TABLE 16

Section V

SELECTED COMMUNITY DATA

A.--GOVERNMENT

(Source: International City Managers Association, *Municipal Year Book*, 1942.)

1.--*Number employed in government functions.*

In 1938, the city of Detroit employed 28,723 persons (excluding school employees). Total wage and salary expenditures in that year were $49,133,844.

2.--*Municipal finances.* (Source: The *National Municipal Review*, June 1942.)

Detroit on January 1, 1942 had the highest net bonded debt per capita of the 5 cities with over 1,000,000 population. Debt per capita amounted to $142. This debt ratio was twice that of Los Angeles; the lowest of the cities in this size group.

B.--SCHOOLS AND EDUCATION

1.--*Number attending school, 1940.* (Source: U. S. Census of Population, 1940.)

School attendance up to and including age 15 was approximately the same in 1940 in the city of Detroit as in other cities of its class. However, the percentage of persons in school in the 16-17 year group was low as compared with the other cities. Only Philadelphia was behind Detroit in that respect among cities of 1,000,000 or more.

Table 18.--Persons in Specified Age Groups Attending School, 1940

Area	7 - 13	14 and 15	16 and 17
	(PERCENT)		
United States.....	95.0	90.0	68.7
Detroit.....	97.8	96.8	75.3
Chicago.....	97.7	96.7	77.8
Los Angeles.....	97.8	97.2	88.8
New York.....	96.9	96.4	77.6
Philadelphia.....	97.0	96.3	72.9

Source: U. S. Census of Population, 1940.

2.--*School facilities.* (Source: Information received from the U. S. Office of Education.)

In the school year 1939-1940 Detroit had a higher enrollment per teacher in its public day schools (including Wayne University) and a lower average expenditure per pupil than any other city of 1,000,000 or more population, except Philadelphia which had a slightly higher enrollment per teacher. Detroit teachers had an average of 38 pupils enrolled in their classes on whom the average expenditure for the school year was $95. This was $1 below the next highest city, Philadelphia, and $52 below the highest, New York.

At the beginning of the National Defense Program extensive steps were taken to provide vocational training facilities for defense workers. At the same time, a great need was developing for school facilities in the outlying areas of the city, where the population growth was accelerated by national-defense industries.[3]

Table 19.--Average Enrollment per teacher and Average Expenditure per Pupil, School Year 1939-40

City	Average enrollment per teacher	Average expenditure per pupil
Detroit[a]	38	$ 95
Chicago[a]	36	113
Los Angeles[a]	34	119
New York	33	147
Philadelphia	39	96

[a]Includes institutions of higher education controlled by City Board of Education.

3.--*Colleges and universities.*

There are three important institutions of higher learning in the area: the University of Michigan at Ann Arbor, and Wayne University (a municipal institution) and the University of Detroit, located in Detroit. In addition, there are several smaller colleges and the Michigan State Normal School which is at Ypsilanti.

C.--HEALTH FACILITIES

(Source : American Medical Directory, 1940; *Hospital Service in the United States*, 1941; and U. S. Census of Population, 1940.)

[Because the health facilities of large cities tend to be utilized to a considerable extent by persons living in a relatively wide surrounding area, Michigan health facilities, rather than those of the city of Detroit proper, are discussed in this section.]

1.--*Number of physicians per 1,000 population.*

Michigan had only 1.21 physicians per thousand population in 1940, ranking twenty-third among the 48 States and the District of Columbia in this respect and below the national average which was 1.33. It ranked last among the 5 States which contain the cities of 1,000,000 or over population.

2.--*Hospitals.*

The 4.36 hospital beds per thousand population in Michigan were slightly below the 4.5 beds per thousand which the U. S. Public Health Service has recommended as a minimun standard. Michigan ranked third among the 5 States in number of hospital beds per thousand population.

[3]*Hearings Before the Select Committee Investigating War and Defense Migration.* (H. Res. 113, 77th Congress, 1st session, September 1941.)

Table 20.--Number of Physicians and Number of Hospital Beds per 1,000 Population in Five Selected States, 1940

State	Number of physicians	Number of hospital beds
Michigan	1.21	4.36
California	1.72	5.57
Illinois	1.54	3.88
New York	2.03	4.97
Pennsylvania	1.37	3.89

D.--RELIEF

(Appendix Table V.)

Expenditures for all types of relief in Wayne and Oakland Counties increased from about $3,300,000 in 1929 to over $75,000,000 in 1938, the year of peak expenditures. It is noteworthy that relief expenditures were very much higher in these counties in the period 1938-40 than from 1933 through 1937, probably because of the inauguration of the Social Security aids during the earlier period. By 1941 relief expenditures in the area had dropped to about $31,500,000.

E.--HOUSING

(Source: U. S. Census of Housing, 1940.)

1.--*Vacancies.* (Chart 14.)

a.--DETROIT COMPARED WITH OTHER CITIES.

In 1940, there was a lower percentage of vacant dwelling units in Detroit than in the other cities in the same size class. Nevertheless, Detroit ranked higher than other Michigan cities, for low vacancy rates are not uncommon in the State.

Table 21.--Vacant Dwelling Units, 1940

United States cities above 1,000,000 population	Percent	Selected Michigan cities	Percent
Detroit	3.6	Detroit	3.6
Chicago	4.0	Flint	2.8
Los Angeles	6.8	Grand Rapids	3.5
New York	7.7	Kalamazoo	3.6
Philadelphia	4.9	Lansing	3.4

b.--DETROIT COMPARED WITH OTHER PARTS OF THE AREA.

The percentage of vacant dwelling units in the Detroit Industrial Area was 4.6 as compared with only 3.6 in the city proper. This was due to the relatively high vacancy rates outside of Wayne County. However, adequate housing for war workers became a problem throughout most of the area as a result of the greatly increased population.

Table 22.--Vacant Dwelling Units in the Detroit Industrial Area, 1940

Area	Percent
Detroit Industrial Area.....	4.6
Macomb.....	6.7
Oakland.....	10.8
Washtenaw.....	8.0
Wayne.....	3.5

2.--*Overcrowding.*

While overcrowding was greater in Detroit than in some of the other industrial cities of the State, it ranked fourth in 1940 in the percentage of dwelling units reporting 1.51 or more persons per room (the usually accepted criterion of overcrowding) among cities with a population of 1,000,000 or more. Only 3.6 percent of the dwelling units in Detroit proper were overcrowded although the proportion in the Detroit Industrial Area was somewhat higher (3.9 percent) due mainly to the relatively large number of overcrowded dwelling units in Oakland and Macomb Counties.

Table 23.--Dwelling Units Reporting 1.51 or More Persons Per Room,, 1940

Region or city	Percent
United States total.....	9.0
United States urban.....	5.7
Detroit.....	3.6
Chicago.....	5.8
Los Angeles.....	3.9
New York.....	4.5
Philadelphia.....	3.1

3.--*Dwelling units needing major repairs and/or without private bath.*
(Appendix tables W and X: See Chart 15.)

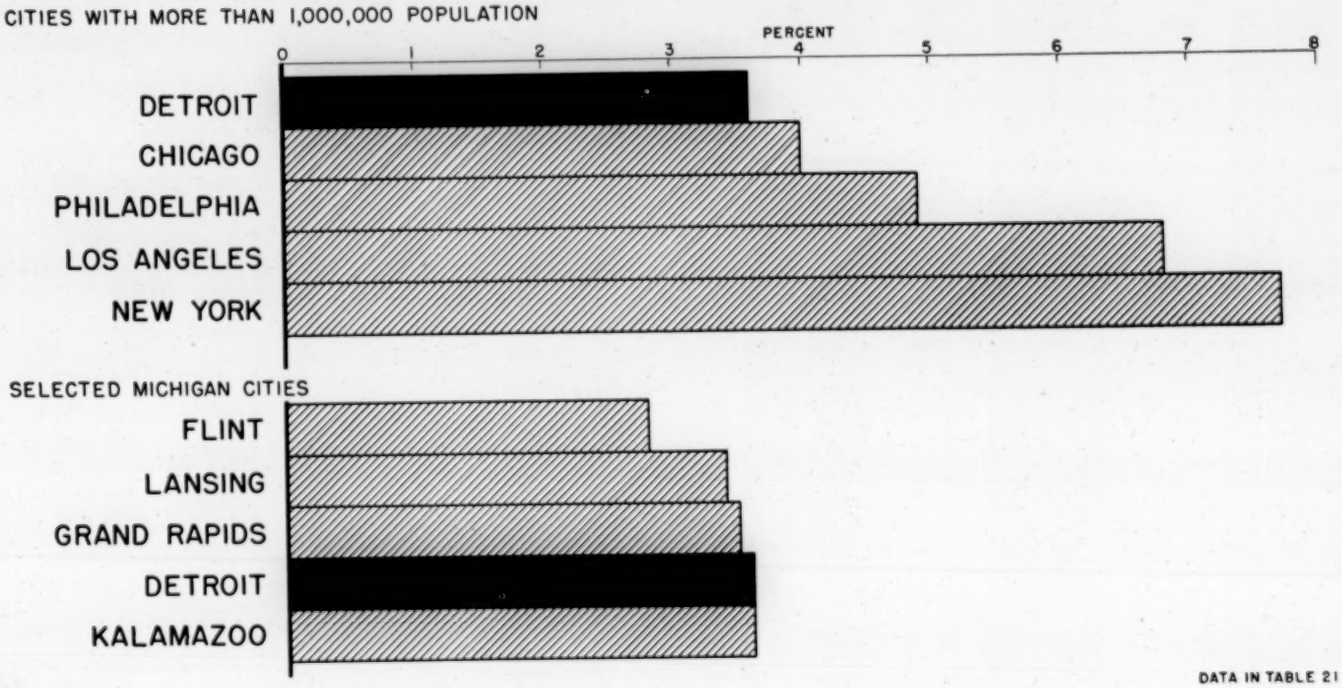
Slightly less than 15 percent of Detroit's dwelling units in 1940 were reported as needing major repairs or as having no private bath or both. Detroit ranked ahead of most other Michigan industrial cities and the remainder of the Detroit Industrial Area in the state of repair and plumbing equipment of its dwelling units, especially the latter. Judged by these criteria, housing conditions were very much worse in the surrounding area than they were in the city of Detroit. Detroit ranked third among the 5 largest cities in the state of repairs and plumbing equipment of its dwelling units.

4.--*Year of construction.*

More than half of the dwelling units in the city of Detroit were built after 1920. The rapid growth of the population probably accounts for the housing construction in these years. Only 10 percent of the dwelling units in Detroit were built before 1900.

CHART 14

VACANT DWELLING UNITS IN SELECTED CITIES OF THE UNITED STATES, 1940

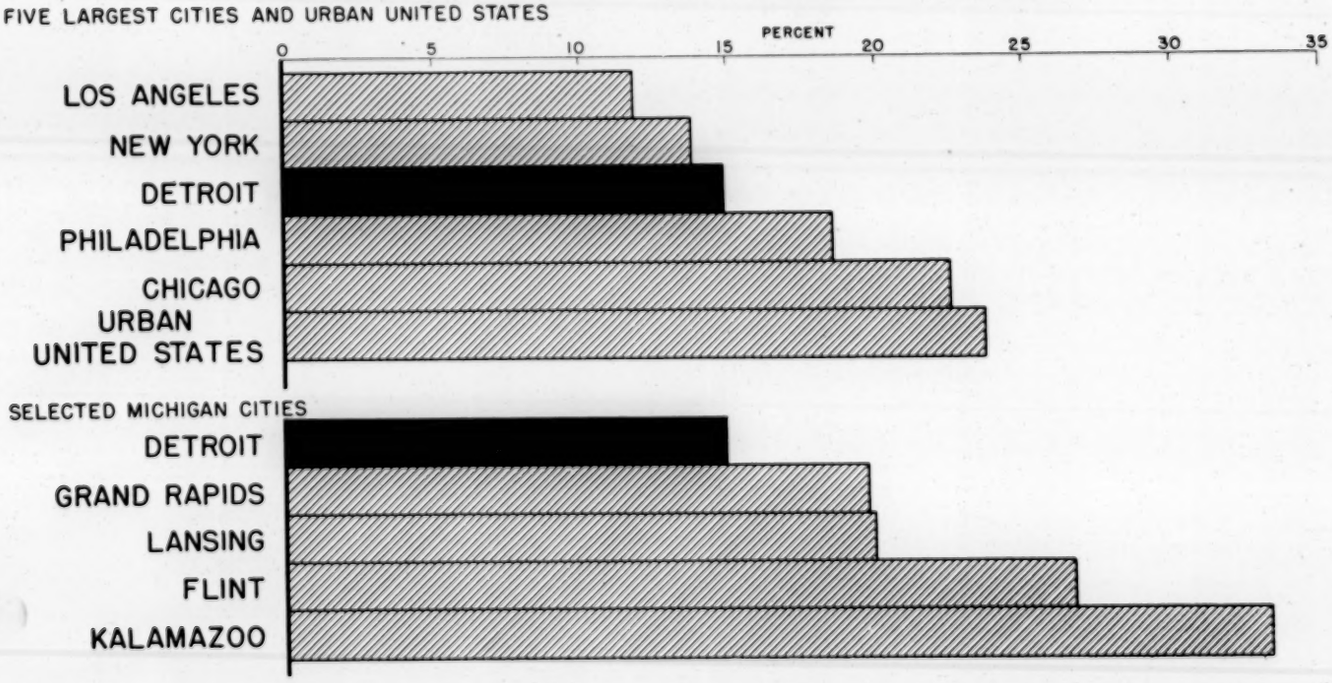


DATA IN TABLE 21

CHART 15

DWELLING UNITS NEEDING MAJOR REPAIRS AND/OR WITHOUT PRIVATE BATH

SELECTED CITIES AND URBAN UNITED STATES, 1940



UNITED STATES DEPARTMENT OF LABOR
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DATA IN APPENDIX TABLES W AND X

Table 24.--Dwelling Units by Year of Construction in the City of Detroit and the Detroit Area, 1940

Year	City of Detroit		Detroit Area	
	Number	Percent	Number	Percent
Total reporting.....	428,938	100.0	647,512	100.0
1930-1940.....	45,976	10.7	100,541	15.5
1920-1929.....	183,533	42.8	273,344	42.2
1910-1919.....	99,999	23.3	135,047	20.9
1900-1909.....	56,112	13.1	70,167	10.8
1899 or earlier...	43,318	10.1	68,213	10.5

5.--*Rent levels.*

a.--GENERAL RENT LEVELS. (Source: U. S. Bureau of Labor Statistics.)

There has been a long-time downward trend in Detroit rent levels since about 1924. Until 1932, however, rents were relatively higher than other items making up the cost of living. From then until the beginning of the war period, rents seemed to follow the general cost of living fairly closely. According to the U. S. Census of Housing, the median monthly rent in 1940 was $34.65, higher than that for Chicago, Philadelphia or Los Angeles.

b.--RENTS PAID BY NONFARM FAMILIES. (Appendix table Y.)

In 1939, the average monthly rent of only 34 percent of the nonfarm families in Detroit was less than $30. In Washtenaw and Wayne Counties rents were also high, but they were lower in Oakland and especially in Macomb where 73 percent of the families reported rents under $30.

F.--INCOMES

1.--*Distribution of incomes.* (Source: U. S. Census of Population, 1940.) See Appendix table Z-1 and Z-2 and chart 18.)

The median income from wages or salaries in 1939 was $1,072 in Detroit, which ranked highest among the 5 cities in the United States with populations of 1,000,000 or more. More than half of the workers received less than $1,200; 18 percent received from $1,200 to $1,600.

2.--*Income tax returns.* (Source: U. S. Bureau of Internal Revenue, *Number of Individual Income Tax Returns for 1940.* See appendix table AA.)

In 1940, 353,000 income tax returns were filed from Detroit. This was 217.6 returns per thousand population, a higher rate than in any of the other cities in the United States with more than 1,000,000 inhabitants. The large number of wage earners employed in the high-wage automobile industry was probably responsible for the large percentage of returns in Detroit. As might be expected, the number of returns per thousand population was higher in Detroit than in the 4-county area or in the State of Michigan.

Area	Number of Federal income tax returns per thousand inhabitants	Area	Number of Federal income tax returns per thousand inhabitants
United States..	111.7	Chicago.....	202.6
Michigan.....	145.2	Los Angeles...	134.8
Detroit Area...	198.7	New York City.	180.7
Detroit.....	217.6	Philadelphia..	161.6

G.--TRADE UNIONS

[That the trade union movement in the United States has recently come to play an important role in the economic and social life of each community is amply proven by its effective participation in the regional and local activities of the various war agencies, particularly the War Production Board, the Office of Civilian Defense, the War Labor Board and the Office of Price Administration. Unfortunately it is impossible on the basis of information at present available in Washington to measure statistically the growth of the trade unions--to say nothing of the extent of their participation in economic and social developments--in separate communities or areas such as that covered in this study. However, data of this type can be obtained in many cities by interested local groups.

Listed below are a few suggestions as to types of data which might be obtained by directing inquiries to the labor organizations in the community.

(1) The names, affiliations and officers of the leading unions and the approximate membership of each.

(2) The leading industries and plants in which collective bargaining contracts between unions and employees are in force, the number of workers covered by such agreements and possibly the most important provisions of each.

(3) The extent to which the central labor union, the central industrial union council, and the larger individual unions in the area have carried on community projects or educational and recreational programs for their members, and the nature of such programs.]

H.--BUSINESS ORGANIZATIONS

[Trade associations, Chambers of Commerce, and employer groups are important sources of economic information in most communities. Information as to the nature or scope of the data collected by those organizations in any one area is not readily available in Washington. In many cities these groups have publications which carry indexes of trends in various aspects of the economic life of the community. In other cities such information, though not published, is collected and may be made available on request. The following list includes some of the types of data which may often be obtained from local business organizations.

Employment (frequently broken down by industry)

Production in the leading industries

Bank deposits

Bank debts

Department store sales

Gas sales

Electricity generated

Number of passengers carried by local transportation lines

Freight car loadings

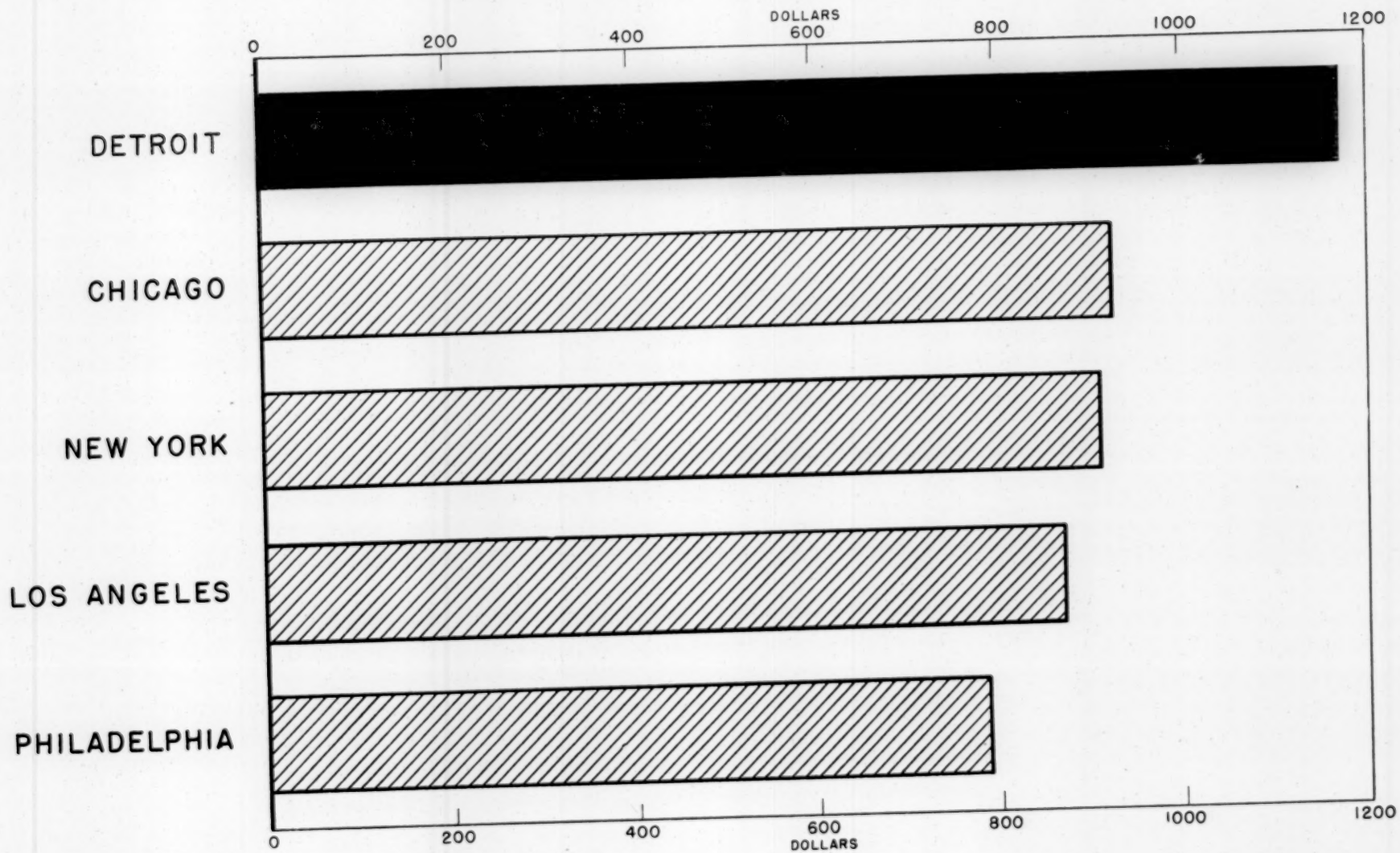
Post office receipts]

CHAR

MEDIAN WAGE RECEIVED IN 1939

BY PERSONS EMPLOYED, EXCEPT IN EMERGENCY WORK, AND EXPERIENCED WORKERS SEEKING WORK

CITIES OF OVER 1,000,000 POPULATION



DATA IN APPENDIX TABLE Z-1

UNITED STATES DEPARTMENT OF LABOR
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Section VI

CURRENT DEVELOPMENTS

A.--WAR PLANT EXPANSIONS

(Source: Files of the U. S. Bureau of Labor Statistics.)

Between June 10, 1940 and December 31, 1942 plant expansions valued at nearly $800,000,000 were authorized in the Detroit Area[4]. About half of this was for expansions in the city of Detroit itself.

B.--WAR SUPPLY CONTRACTS

(Source: War Production Board, *County Distribution of Army, Navy, Maritime Commission, Treasury and Foreign Purchasing Missions War Supply and Facility Awards Cumulative Through June 1943* and *Listings of Major War Supply Contracts.*)

Total war is fought with great quantities of machines, airplanes, tanks, jeeps, trucks, and mobile guns. When the United States became involved in the war it was inevitable that the Detroit Area would be called upon to produce a sizeable proportion of our weapons. Here, in the world's most important automobile manufacturing center was concentrated an enormous industrial plant, a large number of highly trained engineers and managers skilled in planning mass production, and a large well-trained labor force.

Between June 1940 and July 1943 plants in the Detroit Area were awarded contracts for war supplies valued at between 11 and 12 billion dollars. The magnitude of this figure will best be appreciated when it is remembered that in 1939 the value of all products manufactured in the Detroit Area was less than 3 billion dollars, and the products of the entire automobile industry in the United States were valued at only slightly over 4 billion dollars.

Wartime Detroit makes a bewildering variety of products--tanks, jeeps, trucks, bombers, fighter planes, artillery, shells, Diesel engines, and even parachutes and soldiers' helmets. The principal war material manufactured in Detroit, from the standpoint of dollar value of contracts awarded, was aircraft and parts. In July 1943 plants in the area held uncompleted contracts for these products amounting to more than two-fifths of the value of all contracts awarded to Detroit plants. Motor vehicles and parts, which accounted for more than 17 percent of the total, were a fairly close second. However, today no new passenger cars roll off assembly lines, except a few for use by the armed services. Instead, Detroit uses its motor vehicle manufacturing capacity to produce trucks, jeeps, and other materials of modern warfare. Contracts totaling hundreds of millions of dollars were held in the area for guns, tanks, ordnance materials, and engines.

The major portion of the war contracts in the area was held by a small number of firms. Twenty-three firms each held war contracts totaling $12,000,000 or more, amounting to well over 80 percent of the value of all war supply contracts awarded in the area. Three leading firms and a subsidiary of one of them held contracts which accounted for over two-thirds of the total value.

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[4]This total does not include privately financed expansions (certificates of necessity) authorized after June 30, 1942.

C.--EMPLOYMENT

(Source: U. S. Bureau of Labor Statistics, *Indexes of Employment in Manufacturing Industries by Metropolitan Area*; U. S. Bureau of Employment Security, *Labor Demand and Supply in the Pontiac Area, Michigan*, August 17, 1942; U. S. Bureau of Employment Security, *Labor Market Survey of the Wayne County Area*, November 13, 1942, and information received from the War Manpower Commission. Estimates of employment, partly based upon data from these sources, were made by the U. S. Bureau of Labor Statistics.)

1.--*Total employment.* (Chart 1.)

In April 1940, 917,000 persons were employed in the Detroit Area. By January 1944 it is estimated that nearly 1,200,000 persons will be employed there. Nearly all of this increase will be in manufacturing. At the peak, it is estimated that there will be close to 320,000 more workers employed in factories in the Detroit Area than in April 1940.

Table 25.--Estimated Employment in the Detroit Area, 1942, 1943, and 1944 Compared with 1940

Industry	April 1940	October 1942	July 1943	January 1944
Total.....	917,447	1,103,000	1,148,000	1,194,000
Manufacturing.....	431,945	582,000	660,000	750,000
Construction.....	36,311	36,000	28,000	19,000
Other.....	449,191	485,000	460,000	425,000

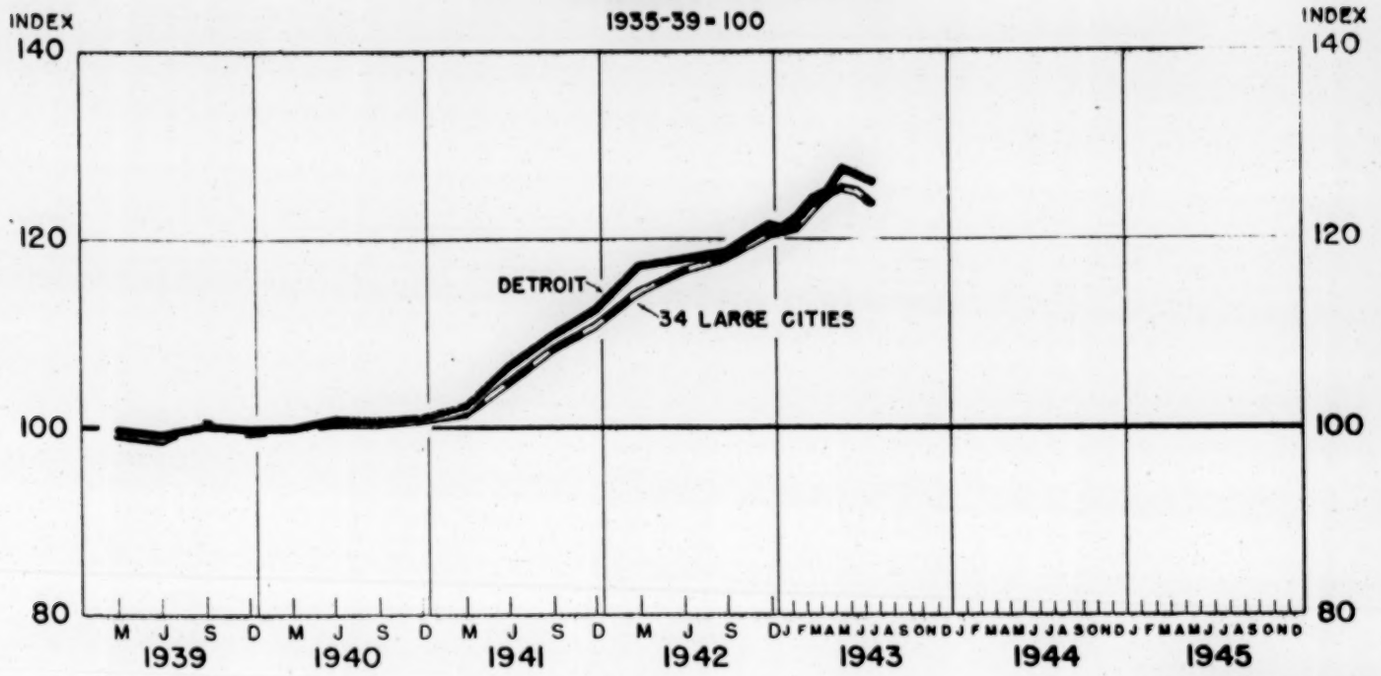
2.--*Manufacturing employment.* (Appendix table B3.)

Employment of manufacturing wage earners in the Detroit Area averaged about 23 percent less in 1939 than it did in the peacetime peak year of 1937. However, it rose moderately in the early months of 1940 so that by September, after the customary summer slump, it showed a substantial rise over the corresponding month in 1939. The upward trend continued until the late fall of 1941. During the 6 months which followed Pearl Harbor when Detroit plants were engaged in conversion to all-out war production and many factories had to be retooled, manufacturing employment fell to 1940 levels. Retooling was virtually completed by July 1942, and from then on employment again rose sharply so that by December 1942 it was 20 percent above the 1937 level.

However, manufacturing employment increased less rapidly between 1939 and July 1943 in the Detroit Area than in the Nation as a whole. The increase for the United States was 70 percent during that period as compared with an increase of only 64 percent in the Detroit Area. In Detroit, a large peacetime industrial plant was converted and expanded to meet new wartime production needs, while in some of the aircraft, shipbuilding, and ordnance centers, complete new industries had to be built almost from the ground up. Hence, while manufacturing employment increased very greatly in the Detroit Area, it was at a less rapid rate than in other areas.

CHART 17

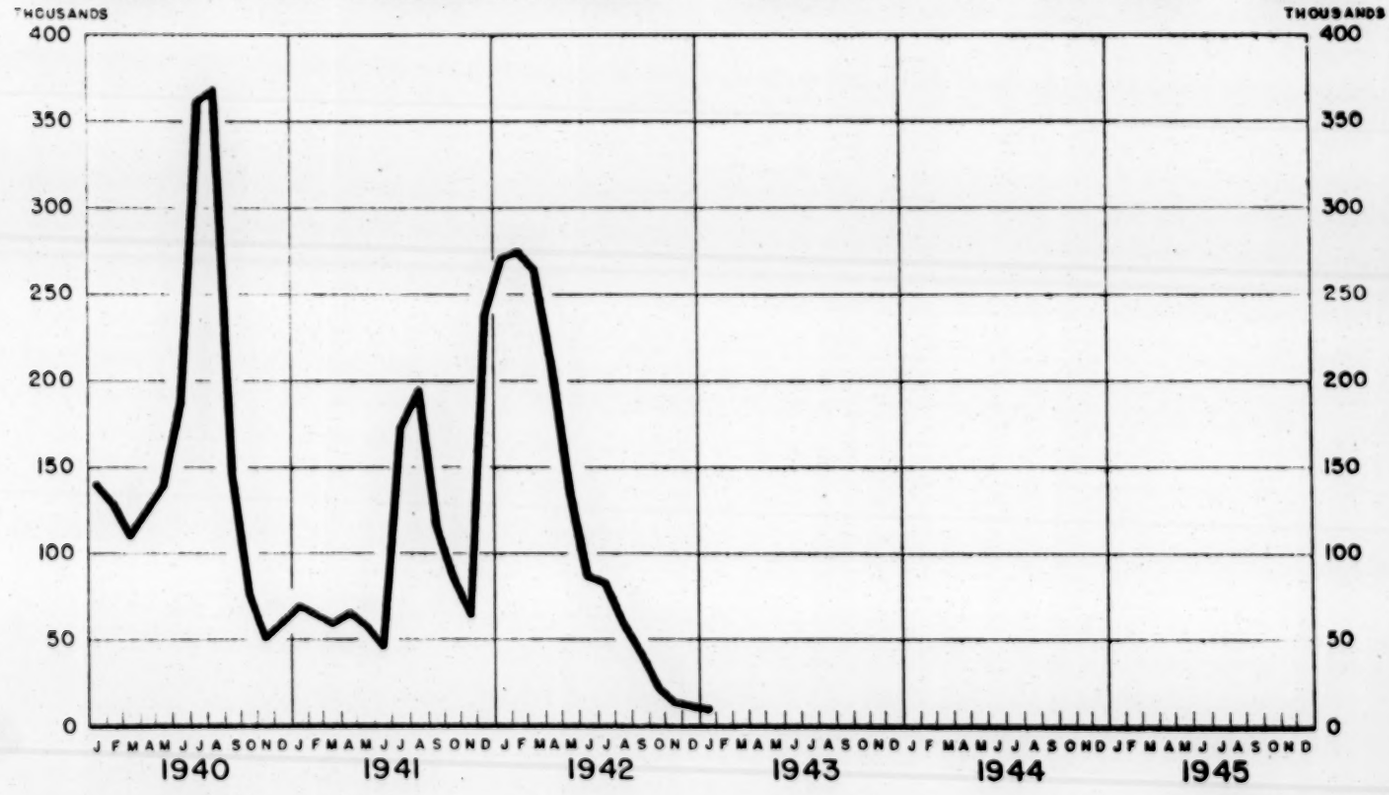
COST OF LIVING IN DETROIT AND 34 LARGE CITIES IN UNITED STATES



DATA IN APPENDIX TABLE DD

CHART 18

CLAIMS FOR UNEMPLOYMENT BENEFITS IN DETROIT AREA



UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

DATA IN APPENDIX TABLE FF

In 1940, 275,000 of the 432,000 manufacturing workers in the Detroit Area were employed in the automobile industry. By January 1944 the number of employees engaged in the manufacture of motor vehicles and parts will have dropped to only 69,000. On the other hand, aircraft production will employ about 344,000 workers in that month as compared with less than 3,000 in 1940. Employment in plants manufacturing ordnance, guns, and tanks will have increased from virtually nothing in 1939 to 167,000. Other lines of manufacturing in the area have experienced more moderate increases or even decreases in employment since 1940. (Chart 2.)

Table 26.--Estimated Manufacturing Employment in the Detroit Area, 1942, 1943 and 1944 Compared with 1940

Industry	April 1940	October 1942	July 1943	January 1944
Total	431,945	582,000	660,000	750,000
Automobiles and automobile equipment	275,223	58,000	59,000	69,000
Ordnance, guns, tanks	-------	129,000	144,000	167,000
Transportation equipment except automobiles (aircraft)	2,894	239,000	288,000	344,000
Iron and steel and their products	33,942	22,000	25,000	28,000
Machinery	32,454	52,000	65,000	73,000
Other	87,432	84,000	79,000	69,000

3.--*Labor supply.*

According to estimates of the War Manpower Commission made in the spring of 1943, more than 200,000 workers were expected to be needed by March 1944 to meet the demand for additional workers in factories in the Detroit Area and to provide for replacement of men withdrawn into the armed forces. Against this demand, there was an estimated supply of 120,000 workers in the area. Therefore, to meet the labor requirements of the area, an in-migration of about 85,000 was thought to be required. With unemployment practically at an irreducible minimum, women not heretofore part of the labor force constituted the only really sizable reserve of potential workers. It was assumed that 45 percent of all women 14 years of age and over would be the maximum number who could be brought into the labor force. (This compares with only 26 percent in 1940.) On this basis, it was estimated that about 65,000 women not customarily in the labor force might be induced to take war jobs. In addition, it was thought that some 25,000 workers in nonwar industry could be transferred to war production.

Estimates of the available labor supply in the area, however, are highly tentative because of the following changes which may take place:

(1) Compulsory recruitment of women and boys of working age.
(2) More drastic curtailment of nonessential manufacturing.
(3) Compulsory transfer of workers from nonmanufacturing to war production.

(4) The availability of adequate transportation for local workers and commuters whose homes are distant from jobs on which they might be used.

(5) The development of hiring policies by individual establishments which would increase the utilization of women and other persons not experienced in factory work.

Of course, should any or all of these factors operate to increase the supply of labor available locally, fewer workers would have to be recruited from outside the area.

D.--POPULATION CHANGES, 1940-1943

(Source: U. S. Bureau of the Census, Estimates of the Civilian Population by Counties, March 1, 1943)

The Bureau of the Census estimated the civilian population of the Detroit Area (Macomb, Oakland, and Wayne Counties) to be 2,554,301 in May 1942, an increase of 180,478 or 7.6 percent over 1940.

E.--CURRENT CONSTRUCTION AND HOUSING CONDITIONS

(Source: U. S. Bureau of Labor Statistics, Building Construction, 1939-1942; and information received from the National Housing Agency; See appendix table CC)

Building construction in the Detroit Area, under the stimulus of the war-time rise of population and expansion of industrial facilities, reached a level in 1941 not reached since the middle 1920's. In 1941, building permits valued at 108 million dollars were issued in Detroit. This was an increase of 72 percent over 1939, when building permit valuation was higher than in any year since 1930. In 1942 the value of building permits dropped off 43 percent from 1941 levels as plant expansions were completed and most types of construction were curtailed.

Between 1939 and 1942, building permits were issued for 41,000 new dwelling units in the city of Detroit. The number of dwelling units provided for in building permits increased more than 40 percent between 1939 and 1940, fell off considerably in 1941, and dropped to below 1939 levels in 1942.

YEAR	NUMBER OF NEW DWELLING UNITS PROVIDED FOR
1939.....	9,276
1940.....	13,095
1941.....	10,311
1942.....	8,598

However, the trend in housing construction for the area as a whole was somewhat different, there being a substantial increase in the number of dwelling units constructed in 1941 over the 1940 level. In general, residential construction activity was at much higher levels in 1941 and 1942 in the area outside Detroit than in the city itself.

Housing of war workers has been a major problem in Detroit. The condition has been aggravated because many of the new war plants have been located on the outskirts of the city. The great Ford bomber plant at Willow Run in Washtenaw County has presented special problems. At the

time it was built no gas and rubber shortages were anticipated, and it was expected that the workers would commute from Detroit and other nearby cities in their own cars. There was a good deal of opposition on the part of the company and local residents to the construction of public housing in the Willow Run Area. As a result, construction of new housing near the plant was delayed. By the time the plant was in partial operation, restrictions on driving and overcrowded conditions in Detroit forced a large number of persons to seek living accommodations near the plant. They found it necessary to live in make-shift substandard dwellings, such as shacks, trailers, basement apartments, and tents, with sanitary facilities so inadequate as to present a serious health hazard to the entire Detroit Area. Other community facilities, such as schools and hospitals, have been overtaxed far beyond their capacity.

The Detroit Fact Finding Committee on Defense Housing recommended that at least 10,000 family units with all the necessary community facilities be built in the Willow Run Area to meet immediate needs. By September 1943 the Federal Public Housing Authority had completed dormitory accommodations for 2,000 workers, 1,000 war apartments to house an estimated 1,500 to 2,000 workers, and 1,000 trailer apartments. In addition 5,000 family units were programmed of which a substantial number had been completed. According to National Housing Agency officials, in September 1943, accommodations for 12,000 families and 5,000 single workers had been completed or were then being built or were scheduled for construction in the Willow Run Area. It was believed that this would be sufficient for the peak employment then estimated for the plant. However, if there were any upward revision of production schedules or peak employment estimates it would probably be necessary to provide accommodations for additional families.

While Willow Run was for a time the most conspicuous "sore spot" in the Detroit housing situation, housing shortages and overtaxed community facilities existed in many other parts of the area. A survey of the U. S. Bureau of the Census indicated that despite the considerable amount of housing construction in the area since Pearl Harbor, in the first week of August 1943, only 0.6 percent of the dwelling units of Detroit, Hamtramck, and Highland Park were vacant. This compares with 3.8 percent vacancy rate in April 1940 for the city of Detroit.

F.--INDEXES OF CURRENT CHANGE

1.--*Cost of living.* (Appendix table DD and chart 17.)

The rise in living costs in Detroit between June 15, 1939 and June 15, 1943 was 28 percent, slightly higher than the average rise in 34 large cities in the United States. All the principal items entering into the cost of living increased in price during the period, but food costs rose most sharply.

Table 27.--Increase of Cost of Living, June 15, 1939 to June 1943

Item	Detroit	34 large cities
	(Percent)	
All items	28.0	26.6
Food	53.2	51.6
Clothing	28.1	27.5
Fuel, electricity and ice	12.7	10.5
House furnishings	21.2	24.7
Rent	5.9	3.5
Miscellaneous	21.8	15.2

The cost of living in Detroit remained nearly stationary throughout 1939 and 1940, but rose fairly steadily between December 15, 1940 and the spring of 1943. All major items in the cost of living except rents increased throughout the latter period but a slight decrease occurred after May 1943. Rents rose until June 1, 1942, when the OPA established ceilings at the levels which existed as of April 1, 1941. As a result, they declined by 7.3 percent between March 15 and June 15, 1942, though they had risen again slightly by the end of the year. As of December 15, 1942, the cost of living in Detroit for a four-person manual worker's family budget ran at 98.0, with Washington, D. C. as 100.0. Detroit was one of the 5 highest of the 33 cities surveyed.

2.--*Relief payments.* (Appendix table EE.)

Total payments for relief in the Detroit Area dropped from $1,600,000 in February 1940 to $1,400,000 in December 1942. Payments for direct relief were only 37.7 percent as great in the latter month as they were in February 1940. During the same period, payments for the categorical aids (Aid to the Blind, Aid to Dependent Children, and Old Age Assistance) increased 49.4 percent, and in December 1942, they were greater than in any month during the entire period.

3.--*Unemployment compensation.* (Appendix table FF and chart 18.)

In the early months of 1942, when Detroit plants were converting to war production, the number of claims for unemployment compensation was very great, reaching nearly 276,000 in February. After April, as the conversion program reached completion, and war production got under way, the number of claims dropped sharply until in January 1943 there were less than 5 percent as many as in the previous February.

4.--*Other indexes.* (Source: Walter A. Foy, *The Chicago-Detroit Region Goes to War with a Vengeance*, U. S. Department of Commerce, March 1943.)

Some idea of the tremendous expansion which has taken place in Detroit can be gleaned from the following figures cited by the Regional Business Consultant of the U. S. Department of Commerce.

	PERCENTAGE INCREASE 1942 OVER 1941
Savings deposits	14
Bank deposits	51
Bank debits	23
Bank clearings	48
Department store sales	18
Gas sales	12
Electricity generated	6
Number of passengers carried by Detroit Street Railways	28

Section VII

PROSPECTS

A.--THE AUTOMOBILE INDUSTRY

1.--*The national outlook.*

The post-war outlook for the Detroit Area will be almost entirely determined by what happens to the automobile industry after the war. The industry is the major employer in the area. The post-war prospects of most of the other industries of any importance in the economy of the area will depend upon what happens to the automobile industry. Therefore, any attempt to discuss Detroit's post-war prospects must begin with an analysis of the outlook for the automobile industry.

a.--THE RECONVERSION PERIOD.

The way in which the war comes to an end may be the main determinant of what reconversion means to the automobile industry. If the war comes to a sudden end simulanteously in all parts of the globe, the war effort on the home front will probably stop just as sharply. In that event, there would be a clean break between the period of war production and the reconversion period. In the case of the automobile industry, it would take the form of a virtually complete shut-down during which something like three-quarters of a million workers might be released from the industry.

On the other hand, if the war does not end everywhere on the same day; if, as Mr. Churchill has suggested, the war is concluded in one part of the globe while it continues in another, the picture of how reconversion in the automobile industry would be carried out is less clear. In that event, it is possible that war production and partial reconversion might be carried out simultaneously so that the reconversion job at the end of the war would be of much smaller dimensions. Were this to happen, the level of employment might not fall below half of the wartime level in the first few months after the war.

It seems more likely, however that even though the war should taper off, there might be no resumption of civilian production until hostilities ceased on all fronts. If that is the policy which is adopted, the situation described under the first hypothesis would prevail. Perhaps, still other hypotheses might be advanced as to how the war might end. At present, they are all question marks, but very important question marks for those who must be concerned with the resumption of peacetime production when the war is over.

There are other factors which will be important in shaping the prospects of the automobile industry in the immediate post-war period. Will the first post-war car be a 1942 model brought out in 194x or will it be the "car of the future"? An official of one of the large firms has stated that his company will be able to have a car on the market within 2 to 3 months after the end of the war,[7] although it is more widely believed that this type of reconversion would require 6 to 9 months before volume production could get under way. On the other hand, if the automobile companies decide to produce new models embodying revolutionary changes, the period of reconversion may

[7] *Business Week*, January 16, 1943.

be very much longer. Their decision on this question will be influenced greatly by whether their jigs and dies for the 1942 models will still be available. Here, the length of the war and the need for scrap material is a primary factor, and these are still other question marks.

Various estimates have been made as to the number of cars which are likely to be produced in the first 12 to 24 months after conversion, assuming that the industry converts for production of the 1942 model. Although these estimates range from an annual rate of as low as 1 million cars to as high as 7 million, the consensus of opinion is that the annual rate of output in the first 2 years or so of post-war production will be between 4 and 6 million cars. Assuming an increase in productivity since before the war of something like 20 percent, employment in the industry would be in the neighborhood of 400,000 or about half of the wartime employment.

About 2 years after the resumption of automobile production, the industry will probably shut down in order to retool for introduction of a new model. During that period there would of course be a considerable amount of unemployment. The level of employment in the industry after the initial period of peacetime production cannot be predicted with any degree of assurance. It will depend in large measure on such factors, now unknown, as the general level of business activity and the amount of purchasing power in the hands of consumers.

All of the foregoing discussion has assumed that the automobile firms will convert 100 percent to the production of motor vehicles. But it is far more likely that these firms will devote at least part of their new facilities to the manufacture of aircraft engines and parts, prefabricated houses, munitions needed to meet the post-war requirements of the armed forces, and other products which will be in demand in the post-war era. The length of time that will be needed for reconversion to the manufacture of these products and the number of workers who will be made jobless during that period are, however, as yet unknown.

Certain institutional factors may have considerable weight in determining the number of months needed to reconvert the automobile industry to civilian production. The reconversion period would be materially shortened if auto manufacturers were given A-1 priorities in the allocation of essential materials in the first post-war months. The amount of purchasing power in the hands of the consuming public and the speed which they are allowed to spend it may influence the decisions of the motor industry as to the kind of car it will bring out which, in turn, will help to determine the length of the reconversion period.

It is likely that the leading automobile firms will have the funds necessary to reconvert their plants, although some of the smaller companies, particularly the parts manufacturers, may not be in such a favorable financial position. General Motors, for example, has been setting aside reserves of about 16 million dollars a year since 1940 for post-war contingencies. In addition to this, in the single year 1942 it set aside 25 million dollars for other types of contingencies [8]. With the amassing of such reserves, the industry should have no great difficulty in meeting the costs of reconversion.

[8] *Baltimore Sun*, August 2, 1942.

Finally, there are the purely technological factors of reconversion. Automobile manufacturers were unable to give any consideration to the eventual problem of post-war reconversion when they were shifting from civilian to war production. Machinery that could not be used for war production was simply put in storage, often outdoors due to lack of inside space. This means that to some extent the machinery needed for production of automobiles will be lacking when the war is over.

It is possible that some machinery used for war production may be able to be used for making passenger cars and trucks. The experience of wartime conversion may throw some light on the problems which will be faced in reconversion. The speed with which a changeover in either direction can be effected depends upon the extent of the change which must be made. Thus, Studebaker took only 10 days to change over from passenger car to military truck production because of the similarity of the product. This same company, however, had to build 3 new plants in order to make Wright aircraft engines, because only 64 of more than 3,000 automotive machine tools were adaptable to aircraft production. This may be an extreme example. However, figures published early in 1942 indicated that only 22 percent of the machines used in producing aircraft engines at 3 General Motors plants had been previously used.[9] These instances are of course not conclusive, but they serve to indicate something of the magnitude of the physical reconversion problems of the industry.

There will also be a problem of human reconversion. The war effort is expected to produce certain changes in the characteristics of the labor force in the automobile industry. The diversity of wartime products will be reflected in a greater spread in the skills of the workers in the industry. The semiskilled group, heretofore the largest in the industry, will become relatively less important insofar as line production of specialized war equipment is not possible. There may, therefore, be a relative decrease in the number of semiskilled workers while the proportion of workers who are unskilled and skilled rises. Many thousands of women and older workers who will be released at the end of the war will retire from the labor force. On the other hand, large numbers of former automobile workers now in the armed forces will want jobs in the industry when they return. All of this may necessitate profound readjustments in the labor force when the industry returns to the manufacture of motor vehicles.

b.--THE LONG-RUN OUTLOOK.

It is anticipated that at the end of the war employment in the industry will be more than twice the prewar peak. If the industry were to go back to producing nothing but motor vehicles, it would have to produce something like 8,000,000 cars and trucks a year or almost twice peak output before the war in order to reach that level. It has been estimated that during the period from 1929 to 1939, there were almost two consuming units (families plus single individuals) to every car.[10] Since annual production of motor vehicles was well below 4,000,000 during most of that period, it is fair to assume that there would have to be more than one car per consuming unit in order to maintain a production level of 8,000,000 vehicles a year, even if cars were scrapped at a greater rate than they were before the war.

[9] *Automotive and Aviation Industries*, April 15, 1942, p. 35.

[10] National Industrial Conference Board, *Conference Board Reports - Automobiles*, October 1939.

It is conceivable that because of the deferred demand which will be built up during the war, such a huge quantity of cars might be absorbed in the first or second year after the war. It is altogether unlikely that such a level of output of motor vehicles could be maintained over a long-run period.

However, it is unlikely that the automobile industry will ever go back to producing exclusively cars and trucks. In all probability motor vehicle firms will continue to manufacture aircraft parts and engines after the war. Heavy concentration on these products during the war will give the industry an opening wedge into the post-war market. It also seems probable that the industry will continue to account for a good share of the Nation's military requirements after the war. Although the probable amount of such production cannot as yet be determined, it is extremely unlikely that it will be more than a small fraction of wartime output.

The ability of the automobile industry to maintain its wartime employment after the war would seem, then, to depend in large measure upon two factors:

(1) A demand for motor vehicles substantially greater than before the war.

(2) Ability to maintain at least some of its wartime output of aircraft engines and parts

2.--*Prospects for Detroit firms.*

How does Detroit fit into this picture? Assuming that this is a reasonably accurate analysis of the prospects for the industry as a whole, is Detroit's share of the national output of the industry likely to increase or decrease as a result of war and post-war developments?

Present indications point to an improved position for Detroit firms after the war relative to the rest of the automobile industry. Both wartime and post-war developments are likely to contribute toward this result. It has been stated previously that the Detroit automobile industry is dominated by the large producers of low- and medium-priced cars and trucks. These firms are likely to be in an even better position after the war.

One reason for this is that their sales organizations are likely to survive through the war period. It is not unlikely that a large proportion of the Nation's automobile dealers will go out of business during the course of the war. With no cars to sell, many of them will undoubtly turn to other pursuits. However, the dealer representatives of the smaller companies will probably have a higher rate of mortality than those of General Motors, Chrysler, and Ford. The latter are in a relatively better financial position to last out the war. This means that the job of rebuilding their sales organizations after the war will not be as difficult as it will be for the smaller companies. It also means that they will be in a better position to take advantage of the large demand for cars which may exist in the immediate post-war period.

It seems likely that the character of the post-war demand for cars and trucks will favor the large manufacturers of low- and medium-priced vehicles who are located in the Detroit Area. With the possibility of a considerable expansion of air travel for longer distances, automobile manufacturers are now talking about turning out smaller cars for every-day transportation. Because the independents have concentrated their production in the more expensive range in the past, it would probably prove difficult for them to invade the low-price field. This would favor the large Detroit producers.

Somewhat the same outlook applies to the truck field. With the possibility that air transport may cut in on the market heretofore dominated by heavy trucks, the smaller truck manufacturers whose output has been predominantly in that field, would suffer thereby. Should the demand be primarily for light trucks after the war, it is likely that the four largest companies - General Motors, Ford, Chrysler, and International - would again dominate the truck manufacturing field.

Finally, the important role which Detroit automobile manufacturers are playing in the production of aircraft engines and parts during the war will leave them in a favorable position to invade this field in the post-war period. Should a large-scale demand for planes develop after the war, the wartime experience of the automobile companies in the production of these items plus the distributive systems they have built up for their automobile sales should put them in a strong position.

Summing up, then, the automobile industry should prosper after the war if consumer incomes are maintained at a high enough level to allow for record production of motor vehicles, aircraft engines and parts, or both. With or without prosperity for the industry as a whole, the Detroit sector of it is likely to be relatively better off than the parts of the industry located in other areas. Since Detroit can in no sense be looked upon as a naturally declining area, its prosperity in the post-war period will depend on the prosperity of the automobile industry which in turn will depend on the maintenance of a high-consumption economy.

Regardless of what happens in the long-run period, however, Detroit automobile firms and the people working in them will not be able to avoid a period of profound readjustment after the war. It seems altogether likely that for a few months, at least, there will be a volume of unemployment running into the hundreds of thousands in the Detroit Area. Some women and older workers will not want jobs and some in-migrants will return to the communities from which they came. But most of the released workers will seek employment in Detroit. How many of them can be re-employed in Detroit and how soon will depend on long-run prospects for the industry and the length of time needed for its reconversion. In the interim, an adequate system of unemployment compensation, a thoroughgoing retraining program, and short-term public works will be needed to support thousands of jobless war workers and returning soldiers.

B.--OTHER INDUSTRIES

[So large a part of the output of Detroit industries is purchased by motor vehicle manufacturers that it is almost impossible to divorce the prospects for such important Detroit industries as iron and steel, machine tools and nonferrous metal products from those for the automobile industry. Nevertheless, because they are important in the economic life of the area, investigation by Detroiters of the changes in these and other industries during the war, of the probable situation in these industries at the end of the war, of the degree of reconversion which will be necessary in these industries, and of the extent and character of the markets for their products when the war is over is essential in preparing for the post-war readjustment of the Detroit Industrial Area.]

C.--PUBLIC WORKS AND OTHER CONSTRUCTION

1.--*Local plans.* (Source: Report of the Mayor's Capital Improvement Program Committee, *A Six Year and Reserve Capital Improvement Program for the City of Detroit* 1943-1949, January 1943; and information received from the Michigan Planning Commission. Appendix table GG.)

For the 6-year period 1943-1949 the City of Detroit has a schedule calling for a 37 million dollar capital improvement program. Engineering plans and specifications for some of these projects have already been prepared. In addition, it has a reserve program of almost 700 million dollars. The reserve program consists of necessary improvements which have been relegated to the reserve because of the limited capacity of the city to finance them. Since the entire program has been planned with no regard to the limitations of wartime conditions, it is really in large measure Detroit's post-war public works program.

The largest single item in the 6-year program is $16,587,000 for the Department of Public Works. The largest item in the reserve program is $257,400,000 for the Housing Commission. The following are some of the more important projects planned in the total program (6-year program and reserve):

Improvements in educational facilities	$23,948,591
20 low-rent housing projects (2,200 dwelling units each)	257,400,000
Parks and recreation	10,213,170
Public lighting	26,091,368
Improvement in city airport	15,000,000
Railroad grade separations	45,800,000
Riverside drive	30,000,000
Civic center	25,000,000
Rapid transit	133,100,000

In addition, several State and local bodies including the Huron-Clinton Parkway Authority, the Wayne County Road Commission, the Michigan State Highway Commission, and the Michigan State Conservation Commission, have worked out plans for highway construction and recreational development in the Detroit Area.

2.—*Federal and State plans.* (Source: Information received from the National Resources Planning Board; *Tax Policy*, March 1943.)

Proposed post-war Federal public work programs for the area are not large enough to provide employment of significant proportions. The State of Michigan is planning for a 50 million dollar post-war fund and has appropriated 20 million dollars from the general fund surplus toward this fund.

Statistical Appendix

Appendix Table A.—*Labor Force in the Detroit Industrial Area, 1940*

Area	Total		Women		Unemployed	
	Number	Percent of population 14 years and over	Number	Percent of labor force	Number	Percent of labor force
4-County Area.	1,063,434	55.5	246,467	23.2	145,987	13.7
Macomb.....	39,526	50.6	6,151	15.6	4,073	10.3
Oakland.....	97,518	51.9	19,022	19.5	11,036	11.3
Washtenaw...	33,168	50.7	9,264	27.9	2,497	7.5
Wayne.....	893,222	56.3	212,030	23.7	128,381	14.4
Detroit...	733,632	57.1	178,093	24.3	108,176	14.7

Source: U. S. Census of Population, 1940.

Appendix Table B.—*Employed Workers by Industry Group, in the Detroit Industrial Area, 1940*

Industry	Workers		Sex		Percent female
	Number	Percent	Men	Women	
Total employed.....	917,447	100.0	705,768	211,679	23.1
Agriculture.....	16,638	1.8	16,090	548	3.3
Forestry (except logging and fishery).	114	(a)	109	5	4.4
Mining.....	734	0.1	708	26	3.5
Construction.....	36,311	4.0	35,510	801	2.2
Manufacturing..	431,945	47.1	385,124	46,821	10.8
Transportation, communication, and utilities.....	50,380	5.5	43,454	6,926	13.7
Wholesale and retail trade.....	157,333	17.1	106,948	50,385	32.0
Finance, insurance, real estate.....	31,013	3.4	20,222	10,791	34.8
Business and repair services.....	17,576	1.9	15,057	2,519	14.3
Personal services.....	67,226	7.3	19,784	47,442	70.6
Amusement, recreation, and related services.....	8,712	1.0	6,811	1,901	21.8
Professional and related services.....	61,687	6.7	27,474	34,213	55.5
Government.....	28,514	3.1	23,058	5,456	19.1
Industry not reported.....	9,264	1.0	5,419	3,845	41.5

Source: U. S. Census of Population, 1940.

[a] Less than 0.05 percent.

Appendix Table C.—*Wage Earners by Manufacturing Industry Group in Five Selected Cities, 1940*

Industry	Number					Percent				
	Detroit	Chicago	Cleve-land	New York	Phila-delphia	Detroit	Chicago	Cleve-land	New York	Phila-delphia
All manufacturing	295,123	460,857	129,423	746,466	248,307	100.0	100.0	100.0	100.0	100.0
Food and kindred products	14,259	71,475	7,695	67,648	22,678	4.8	15.5	6.0	9.1	9.1
Textile-mill products	1,047	6,724	3,532	42,081	40,397	.4	1.5	2.7	5.6	16.3
Apparel and other fabricated textile products	2,422	32,631	8,045	236,604	33,343	.8	7.1	6.2	31.7	13.4
Logging	18	28	6	50	15	(a)	(a)	(a)	(a)	(a)
Sawmills and planing mills	548	1,572	303	1,407	773	.2	.4	.3	.2	.3
Furniture, store fixtures and miscellaneous wooden goods	2,533	20,348	2,454	21,104	4,883	.9	4.4	1.9	2.8	2.0
Paper and allied products	1,777	13,259	1,638	20,049	8,080	.6	2.9	1.3	2.7	3.3
Printing, publishing and allied products	10,335	49,908	6,511	81,528	17,990	3.5	10.8	5.0	10.9	7.2
Chemical and allied products	5,913	17,086	5,404	30,400	8,897	2.0	3.7	4.2	4.1	3.6
Petroleum and coal products	1,103	4,470	1,468	8,074	5,943	.4	1.0	1.1	1.1	2.4
Leather and leather products	550	11,542	266	26,702	7,566	.2	2.5	.2	3.6	3.0
Stone, clay, and glass products	2,786	6,584	1,175	8,366	3,004	.9	1.4	.9	1.1	1.2
Iron and steel and their products	19,500	73,972	39,345	24,332	21,781	6.6	16.0	30.4	3.3	8.8
Nonferrous metals and their products	5,978	12,154	6,335	21,099	3,051	2.0	2.6	4.9	2.8	1.2
Machinery	24,287	82,652	25,379	44,459	25,720	8.2	17.9	19.6	6.0	10.4
Automobiles and automobile equipment	187,528	8,910	11,273	5,256	7,066	63.5	1.9	8.7	.7	2.8
Transportation equipment except automobiles	1,701	6,886	2,752	21,985	14,122	.6	1.5	2.1	2.9	5.7
Other and not specified manufacturing	12,838	40,756	5,845	85,322	22,998	4.4	8.9	4.5	11.4	9.3

Source: U. S. Census of Population.

[a] Less than 0.05 percent.

Appendix Table D.--*Total Value of Manufactured Product in the United States and the Detroit Area*

Year	Value of product		Index	
	United States	Detroit Area	United States	Detroit Area
	(in millions)		(1929=100.0)	
1929.....	$68,178.3	$2,871.7	100.0	100.0
1931.....	39,829.9	1,574.8	58.4	54.8
1933.....	30,557.3	1,363.7	44.8	47.5
1935.....	44,993.7	2,706.0	66.0	94.2
1937.....	60,712.9	3,456.4	89.1	120.4
1939.....	56,843.0	2,816.5	83.4	98.1

Source: U. S. Census of Manufactures.

Appendix Table E.--*Trends in Selected Manufacturing Industries in the Detroit Industrial Area*[a]

Industry	Year	Number of establishments	Wage earners	Value of products ($000)	Percent of all manufacturing industries in the Detroit Industrial Area		Percent of U. S. total for this industry	
					Wage earners	Value of products	Wage earners	Value of products
Motor vehicles, motor vehicle bodies, parts and accessories ..	1929	97	158,437	1,671,809	54.0	58.9	35.4	31.8
	1933	75[b]	126,117	965,578	56.4	65.2	51.8	52.1
	1935[c]	---	-------	---------	----	----	----	----
	1937[c]	---	-------	---------	----	----	----	----
	1939	115	191,356	1,658,795	61.5	61.0	48.0	41.0
Machine tools, machine tool accessories and machinists' precision tools.....	1929	118	8,787	56,336	3.0	2.0	11.8	14.5
	1933	117	4,444	20,408	2.1	1.4	17.4	23.8
	1935	161	10,123	47,075	3.1	1.8	19.7	21.5
	1937	159	11,395	68,055	2.8	2.0	14.2	16.1
	1939	176	6,964	44,374	2.2	1.7	11.3	13.1
Steel works and rolling mills..	1929	8	3,921	52,890	1.3	1.9	1.0	1.6
	1933[c]	----	-------	---------	----	----	----	----
	1935	10	13,211	73,235	4.0	2.7	3.7	3.8
	1937	12	18,147	111,589	4.5	3.3	3.8	3.4
	1939[d]	4	581	2,576	----	----	----	----
Stamped and pressed metal products; enameling, japanning and lacquering.....	1929	33	2,731	15,195	0.9	0.5	6.8	7.4
	1933	31	1,232	6,173	.8	.4	5.7	5.3
	1935	44	5,286	23,546	1.6	.9	10.6	11.3
	1937	54	5,834	30,464	1.4	.9	9.5	10.4
	1939[e]	48	3,292	18,139	----	----	----	----
Nonferrous metal alloys, nonferrous metal products, except aluminum.....	1929	63	8,730	79,257	3.0	2.8	11.0	8.7
	1933	40	4,198	18,386	1.9	1.2	8.8	7.7
	1935	53	5,733	35,271	1.7	1.3	9.1	9.0
	1937	53	7,692	54,768	1.9	1.6	9.3	8.2
	1939[c]	---	-------	---------	----	----	----	----
Paints, pigments and varnishes.	1929	33	1,322	30,940	.4	1.1	4.5	5.4
	1933	25	1,164	12,686	.5	.9	5.1	4.4
	1935[c]	---	-------	---------	----	----	----	----
	1937	31	1,664	35,044	.4	1.0	5.3	6.5
	1939	39	1,451	27,935	.5	1.0	5.2	5.4

See footnotes at end of table.

[CONTINUED]

Appendix Table E.--*Trends in Selected Manufacturing Industries in the Detroit Industrial Area*[a]--Continued

Industry	Year	Number of establishments	Wage earners	Value of products ($000)	Percent of all manufacturing industries in the Detroit Industrial Area		Percent of U. S. total for this industry	
					Wage earners	Value of products	Wage earners	Value of products
Heating and cooking apparatus (except electric)	1929	21	3,087	20,181	1.1	0.7	3.6	4.0
	1933	18	2,139	10,090	1.0	.7	4.1	5.4
	1935	22	2,354	12,518	0.8	.5	3.4	4.2
	1937	20	1,899	14,856	.5	.4	2.1	3.4
	1939[f]	11	872	4,944	---	---	---	---
Meat packing, wholesale	1929	22	2,004	58,384	.7	2.1	1.6	1.7
	1933	16	1,664	17,786	.8	1.2	1.5	1.2
	1935	23	1,754	36,029	.5	1.3	1.5	1.5
	1937	22	1,952	47,980	.5	1.4	1.5	1.7
	1939	29	1,587	41,409	.5	1.5	1.3	1.6
Liquors, malt	1929[g]	--	-----	------	---	---	---	---
	1933	14	466	2,750	.2	.6	2.0	2.6
	1935	19	2,022	22,003	.6	.8	5.2	5.2
	1937	17	2,038	24,028	.5	.7	4.4	4.5
	1939	13	1,373	20,088	.4	.7	3.8	3.8
Cigars	1929[h]	17	3,323	13,253	1.1	.5	3.9	4.3
	1933	11	2 326	5,575	1.1	.4	4.3	4.0
	1935	17	2,742	7,560	.8	.3	4.9	5.0
	1937	15	1,842	5,003	.5	.1	3.3	3.0
	1939	16	1,121	3,087	.4	.1	2.2	1.9
Printing and publishing, newspapers and periodicals	1929	104	1,794	38,817	.6	1.4	1.4	2.2
	1933	70	1,773	19,354	.8	1.3	1.8	1.9
	1935	87	2,298	24,212	.7	.9	1.9	2.0
	1937	85	3,518	29,840	.9	.9	2.6	2.1
	1939	106	1,896	28,209	.6	1.0	1.6	2.0
Concrete products	1929	81	581	4,439	.2	.2	3.5	4.6
	1933	11	84	245	(i)	(i)	1.2	1.2
	1935	29	189	1,101	.1	(e)	2.3	2.4
	1937	35	358	2,471	.1	.1	2.8	3.2
	1939	41	500	3,871	.2	.1	2.9	2.9

Source: United States Census of Manufactures.

[a] Includes Wayne and Oakland Counties only.

[b] Includes 3 establishments not in Detroit.

[c] Not shown separately.

[d] Not comparable with earlier years; includes steel castings only.

[e] Data incomplete

[f] Not comparable with earlier years; does not include steam and hot water heating apparatus and steam fittings.

[g] No such industry in 1929.

[h] Includes cigarettes.

[i] Less than 0.05 percent.

Appendix Table F.--*Raw Materials Used in the Automotive Industry, 1939*[a]

Industry	United States total consumption	Automotive consumption	Percent
Steel[b] (net tons)	33,122,628	5,993,590	18.1
Iron, malleable (tons)	565,000	286,000	50.6
Gray iron (tons)	6,839,000	947,920	13.9
Rubber, crude (long tons)	592,000	473,600	80.0
Plate glass (square feet)	158,999,959	117,725,000	75.0
Leather upholstery (square feet)	39,320,000	27,077,000	68.0
Aluminum (tons)	217,000	21,000	9.7
Copper (tons)	801,000	110,000	13.7
Tin (tons)	88,000	10,000	11.4
Lead (tons)	667,000	228,000	34.2
Zinc (tons)	628,000	76,000	12.1
Nickel (pounds)	88,000,000	20,000,000	22.7
Cotton (bales)	7,371,420	734,147	10.0
Lumber, hardwood (board feet)	4,019,000,000	175,000,000	4.4
Lumber, softwood (board feet)	----------	104,000,000	----
Glycerine (pounds)	150,000,000	18,200,000	12.1
Cloth, upholstery (yards)	----------	45,120,000	----

Source: *Automobile Facts and Figures.*

[a]Estimated amounts used in manufacturing motor vehicles, repair parts, and accessories in 1939.

[b]Figures from the magazine *Steel.*

Appendix Table G.--*Factory Sales of Motor Vehicles in the United States*

Year	Total	Passenger cars	Motor trucks
1919	1,876,356	1,651,625	224,731
1920	2,227,349	1,905,580	321,739
1921	1,616,119	1,466,067	145,052
1922	2,544,176	2,274,185	269,991
1923	4,034,012	3,624,717	409,295
1924	3,602,540	3,185,881	416,659
1925	4,265,830	3,735,171	530,659
1926	4,300,934	3,783,987	516,947
1927	3,401,326	2,936,533	464,793
1928	4,358,759	3,815,417	543,342
1929	5,358,420	4,587,400	771,020
1930	3,355,936	2,784,745	571,241
1931	2,389,738	1,973,090	416,648
1932	1,370,676	1,135,491	235,187
1933	1,920,057	1,573,512	346,545
1934	2,753,111	2,177,919	575,192
1935	3,946,934	3,252,244	694,690
1936	4,454,115	3,669,528	784,587
1937	4,808,974	3,915,889	893,085
1938	2,489,085	2,000,985	488,100
1939	3,577,292	2,866,796	710,496
1940	4,469,354	3,692,328	777,026
1941	4,836,561	3,744,300	1,094,261

Source: *Automobile Facts and Figures.*

Appendix Table H.--*Average Employment and Annual Pay Rolls in the Automobile Manufacturing Industry in the United States*

Year	Employment (in thousands)	Pay rolls (in thousands of dollars)
1919.....	342.7	490,777
1920.....	354.8	592,475
1921.....	213.0	319,530
1922.....	289.5	431,070
1923.....	404.6	660,056
1924.....	377.1	594,444
1925.....	425.8	713,857
1926.....	422.0	687,613
1927.....	370.0	612,159
1928.....	435.8	747,319
1929.....	447.4	732,888
1930.....	322.8	431,548
1931.....	286.0	350,480
1932.....	243.7	254,800
1933.....	244.1	250,900
1934.....	360.6	434,356
1935.....	387.8	545,460
1936.....	407.3	623,532
1937.....	479.3	756,028
1938.....	287.4	425,778
1939[a].....	399.0	646,412
1940[a].....	454.1	804,284
1941[a].....	519.5	1,070,042

Source: U. S. Bureau of Labor Statistics.

[a] Not comparable with earlier years because the industry now includes captive foundries the employment of which was 31,000 in 1937.

Appendix Table J.--*Productivity in the Motor Vehicle, Bodies and Parts Industry*

Year	Index of output per	
	Wage earner	Man hour
	(1929=100)	
1919.....	41.8	42.7
1920.....	45.7	46.4
1921.....	54.3	56.8
1922.....	63.0	61.2
1923.....	71.1	69.8
1924.....	68.5	70.8
1925.....	75.0	74.2
1926.....	80.0	78.5
1927.....	78.7	79.4
1928.....	85.5	83.9
1929.....	100.0	100.0
1930.....	90.3	105.9
1931.....	74.6	94.3
1932.....	55.1	82.4
1933.....	74.8	99.5
1934.....	72.1	101.2
1935.....	93.7	118.2
1936.....	99.8	121.3
1937.....	91.6	119.3
1938.....	83.3	118.4
1939.....	90.1	118.8
1940.....	97.5	120.4

Source: U. S. Bureau of Labor Statistics.

Appendix Table K.--New Passenger Car Registrations in the United States

Year	Total registration of 11 makes	Percent of total registrations										
		Chevrolet	General Motors total	Ford	Ford Company total	Plymouth	Chrysler total	Hudson total	Nash total	Packard	Studebaker	All others
1929.....	3,880,246	20	33	34	34	2	9	6	3	1	2	12
1930.....	2,625,979	24	35	40	40	2	8	4	2	1	2	8
1931.....	1,908,141	31	43	28	28	5	12	3	2	1	2	9
1932.....	1,096,399	30	42	24	24	10	17	3	2	1	2	9
1933.....	1,493,794	32	43	21	21	17	26	3	1	1	1	4
1934.....	1,888,557	28	40	28	28	16	23	3	1	1	2	2
1935.....	2,743,908	24	39	30	30	14	23	3	1	1	1	2
1936.....	3,404,497	29	43	22	23	15	25	3	1	2	2	1
1937.....	3,483,752	22	40	22	23	13	25	3	2	3	2	2
1938.....	1,891,021	25	45	19	20	15	25	2	2	3	2	1
1939.....	2,653,377	23	44	18	22	13	24	2	2	2	3	1
1940.....	3,415,905	25	47	16	19	13	24	2	2	2	3	1

Source: *Automotive Industries*.

Appendix Table L.--*Factory Sales of New Passenger Cars by Wholesale Price Classes, United States and Canada*

Wholesale price class	1926	1927	1928	1929	1930	1931	1932
	Number						
Total.....	$3,948,343	$3,033,360	$4,012,158	$4,794,998	$2,910,187	$2,033,183	$1,136,165
Under $500...	1,633,775	1,039,216	1,698,603	2,585,414	1,754,747	1,328,294	794,164
$501-750.....	1,149,301	957,987	1,219,266	1,317,116	650,352	413,029	260,351
751-1,000...	500,509	446,663	462,452	387,835	204,450	162,954	74,610
1,001-1,500.	476,675	466,902	456,117	347,340	179,180	80,697	38,670
1,501-2,000.	94,915	107,425	103,448	98,086	55,351	33,546	8,699
2,001-3,000.	73,738	50,064	55,304	47,537	27,266	12,714	8,679
Over 3,000..	19,951	15,103	11,968	11,520	8,841	5,759	2,532
	Percent of total						
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under $500...	41.4	33.7	42.3	53.9	60.3	65.2	67.0
$501-750.....	29.1	31.1	30.4	27.5	23.4	20.3	22.0
751-1,000...	12.7	14.5	11.5	8.1	7.1	8.0	6.3
1,001-1,500.	12.1	15.2	11.4	7.3	6.2	3.9	3.1
1,501-2,000.	2.4	3.5	2.7	2.0	1.9	1.7	.7
2,001-3,000.	1.8	1.6	1.4	1.0	.9	.6	.7
Over 3,000..	.5	.4	.3	.2	.2	.3	.2

Wholesale price class	1933	1934	1935	1936	1937	1938	1939
	Number						
Total.....	$1,627,361	$2,270,566	$3,387,806	$3,797,897	$4,068,935	$2,124,746	$2,975,165
Under $500...	1,316,341	1,443,357	1,787,171	1,919,619	1,368,019	329,858	285,217
$501-750.....	257,099	715,989	1,444,529	1,677,558	2,392,415	1,521,404	2,390,466
751-1,000...	32,610	66,223	110,815	143,269	260,280	224,339	253,931
1,001-1,500.	20,125	27,576	28,736	39,997	31,226	42,160	49,033
1,501-2,000.	10,409	8,391	8,716	11,545	11,633	3,661	4,304
2,001-3,000.	8,725	6,879	5,413	4,326	4,061	2,161	1,870
Over 3,000..	2,052	2,151	2,428	1,584	1,302	663	344
	Percent of total						
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under $500...	80.9	63.5	52.7	50.6	33.6	15.5	9.6
$501-750.....	14.6	31.6	42.6	44.2	58.8	71.6	80.0
751-1,000...	2.0	2.9	3.3	3.7	6.4	10.6	8.5
1,001-1,500.	1.2	1.2	.9	1.1	.8	2.0	1.7
1,501-2,000.	.7	.4	.3	.3	.3	.2	.1
2,001-3,000.	.5	.3	.1	.1	.1	.1	.1
Over 3,000..	.1	.1	.1	(a)	(a)	(a)	(a)

Source: *Automobile Facts and Figures.*

[a] Less than 0.05 percent.

Appendix Table M.--*Permit Valuation of Various Classes of Building Construction in Detroit and in 257 Cities of 25,000 and Over*

Year	Detroit			257 Identical Cities		
	Total	New residential building	New nonresidential building	Total	New residential building	New nonresidential building
1935-1939 average...	$46,687,093	$29,361,506	$11,231,506	$1,107,149,054	$496,994,280	$376,046,322
	(1935-1939 average=100)					
1921.....	124.6	85.0	167.4	166.0	137.9	167.3
1922.....	200.6	180.7	266.5	250.0	324.9	231.2
1923.....	278.0	308.5	222.6	307.0	402.1	283.4
1924.....	344.0	357.5	397.9	316.9	410.2	299.2
1925.....	386.0	392.0	461.5	363.8	481.0	345.8
1926.....	395.7	397.3	472.9	345.7	447.3	335.8
1927.....	311.9	234.9	562.1	314.2	383.5	327.6
1928.....	276.9	233.0	431.2	298.5	374.1	302.0
1929.....	215.5	177.0	294.1	284.9	288.5	305.2
1930.....	103.7	77.5	169.7	153.3	121.0	225.9
1931.....	50.2	35.9	77.9	111.8	85.9	165.6
1932.....	18.7	6.4	46.5	43.5	20.9	73.3
1933.....	8.6	4.4	11.5	34.6	18.5	48.7
1934.....	19.0	8.3	31.5	37.3	15.8	62.5
1935.....	47.6	32.0	73.2	62.4	43.0	76.7
1936.....	92.7	88.4	102.4	97.0	92.7	100.0
1937.....	114.4	105.1	135.8	107.2	95.8	115.6
1938.....	111.0	120.4	98.8	107.1	116.7	101.3
1939.....	134.5	155.9	92.1	126.3	151.8	106.0
1940.....	190.1	199.1	181.8	159.0	180.4	191.6
1941.....	232.4	177.7	401.5	178.7	174.8	224.5
1942.....	132.5	131.7	138.2	(a)	(a)	(a)

Source: *Building Construction* and files of F.I.S., Division of Construction and Public employment.

[a]Data not available.

Appendix Table N.--*Retail Trade in the Detroit Industrial Area and the City of Detroit*

Year	Detroit Industrial Area	City of Detroit
	Retail stores	
1929	23,739	17,169
1933	24,609	17,141
1935	27,356	19,133
1939[a]	29,458	19,844
	Total active proprietors and employees[b]	
1929	115,303	88,311
1933	96,166	72,463
1935	112,673	85,004
1939[a]	132,226	96,896
	Active proprietors	
1929	21,380	15,091
1933	24,399	16,444
1935	23,780	16,332
1939[a]	25,772	17,118
	Employees[b]	
1929	93,923	73,220
1933	71,767	56,019
1935	88,893	68,672
1939[a]	106,454	79,780
	Retail sales ($000)	
1929	$1,164,608	$890,189
1933	485,308	369,936
1935	729,447	543,690
1939[a]	940,177	665,565

Source: U. S. Census of Business.

[a] The 1939 Census of Retail Trade, unlike those of previous years, did not include service garages. United States totals for garages are available in the 1939 Census of Service Industries, but data for smaller areas are not given. In 1935 and previous years, however, service garages accounted for only a very small percentage of the total retail sales.

[b] Part-time employment has been estimated for 1929 and 1933, and added to full-time employment to the data for those years comparable with 1935 and 1939 data which include both full- and part-time data.

Appendix Table O.—*Labor Pattern for the Automobile Industry in Detroit*
May-June 1940

Department and occupation	Number of workers	Percent of total workers
All occupations	322,941	100.0
Processing occupations	248,678	77.0
Assemblers, chassis and final	19,399	6.0
Assemblers, motor	7,293	2.3
Assemblers and trimmers, body	23,507	7.3
Clerical workers, factory	4,671	1.4
Foremen and lay-out men	3,163	1.0
Inspectors, n.e.c.	11,252	3.5
Laborers, n.e.c.	9,062	2.8
Leaders and relief workers	5,791	1.8
Metal finishers	10,322	3.2
Operators, drill presses	8,254	2.6
Operators, grinding machine	6,099	1.9
Operators, automatic and semi-automatic lathes	5,651	1.7
Operators, milling machines	3,262	1.0
Operators, machinery n.e.c.	5,710	1.7
Paint shop workers n.e.c.	4,190	1.3
Painters, spray	4,489	1.4
Punch and press operators	13,466	4.2
Repairmen, productive n.e.c.	5,182	1.6
Sanders and rough stuff rubbers	4,089	1.3
Trim bench hands	7,380	2.3
Truckers, hand, and material handlers	17,503	5.4
Truckers, power, inside	3,294	1.0
Welders and brazers, hand	4,068	1.3
Welders and brazers, machine	8,429	2.6
All other processing occupations	53,158	16.4
Tool and die-room occupations	19,210	6.0
Foremen and leaders	1,639	0.5
Tool and die makers	13,920	4.3
Tool and die maker apprentices	1,809	0.6
Tool-room workers n.e.c.	1,842	.6
Foundry occupations	18,469	5.7
Casting cleaners	1,505	0.5
Chippers and sand blasters	2,210	.7
Coremakers	2,323	.7
Inspectors	726	.2
Molders	1,555	.5
Pattern-makers	422	.1
Skilled and semi-skilled foundry workers, n.e.c.	6,310	1.9
Unskilled foundry workers	3,418	1.1
Maintenance and service occupations	36,584	11.3
Carpenters	692	0.2
Electricians	2,801	.9
Foremen and leaders	1,953	.6
Helpers and apprentices	2,322	.7
Janitors	5,091	1.6
Laborers n.e.c.	2,486	.8
Millwrights	2,841	.9
Pipe fitters	1,663	.5
Repairmen, skilled	5,525	1.7
Semi-skilled workers n.e.c.	1,271	.4
Service workers n.e.c.	844	.2
Skilled workers n.e.c.	4,560	1.4
Tool grinders and cutters	1,353	.4
Truck drivers	1,310	.4
Watchmen	1,872	.6

Source: *Monthly Labor Review*, February 1942.

Appendix Table P.--*Farms in the Detroit Area in 1939, by Major Source of Income*

Major source of income	Total 4 counties		Macomb	Oakland	Wash-tenaw	Wayne
	Number	Percent				
Total	14,197	100.0	3,793	3,745	3,205	3,454
Farm products used by farm households	4,741	33.4	969	1,414	712	1,646
Dairy products	3,339	23.5	1,089	851	885	511
Field crops	1,674	11.8	482	428	443	321
Livestock	1,334	9.8	186	306	770	142
Poultry and poultry products	1,147	8.1	349	293	216	289
Vegetables	1,007	7.1	548	98	64	297
Fruits and nuts	568	4.0	106	250	68	142
Horticultural specialties	233	1.6	85	59	16	93
Other livestock products	99	.7	19	36	31	13
Forest products	7	(a)	-----	----7	-----	-----

Source: U. S. Census of Agriculture, 1940.

[a] Less than 0.05 percent.

Appendix Table Q.—*Typical Electrical Bills for Residential Service*[a] *in Five Leading Cities of the Great Lakes Region, 1942*

Cities	Monthly bill for residential service		
	25 KWH	100 KWH	250 KWH
Five-city average...	$1.23	$3.34	$6.31
Buffalo.....	1.13	3.08	5.31
Chicago.....	1.34	3.65	6.65
Cleveland.....	1.00	3.35	6.72
Detroit.....	1.26	3.28	6.66
Milwaukee.....	1.41	3.35	6.23

Source: Federal Power Commission, *Typical Electric Bills, Cities of 50,000 Population and More*, 1942.

[a] Rates are for "motive power, unrestricted lighting."

Appendix Table R.—*Industrial Power Rates in Five Leading Cities of the Great Lakes Region, 1942*

Cities	Billing Demand (Kilowatts) and Monthly Consumption (Kilowatt Hours)					
	75 Kw.		300 Kw.		1,000 Kw.	
	15,000 KWH	30,000 KWH	60,000 KWH	120,000 KWH	200,000 KWH	400,000 KWH
	(Average charges in cents per kwh)					
Five-city average...	1.85	1.44	1.52	1.12	1.29	.96
Buffalo, New York.	1.07	.78	1.00	.72	.97	.87
Chicago, Illinois.	2.05	1.52	1.45	1.09	1.15	.87
Cleveland, Ohio...	1.94	1.60	1.61	1.20	1.28	.97
Detroit, Michigan.	2.58	1.66	1.97	1.35	1.75	1.24
Milwaukee, Wisconsin.....	2.11	1.67	1.56	1.24	1.28	1.03

Source: Federal Power Commission, *Typical Electric Bills, Cities of 50,000 Population and More*, 1942.

Appendix Table S.--*Average Hourly Entrance Rates of Adult Male Common Laborers, by Industry, July 1942*

City	16 manufacturing industries	Foundry and machine-shop products[a]	Public utilities	Building construction
United States.....	$0.561	$0.594	$0.536	$0.674
1,000,000 and over:				
Chicago, Ill.....	.723	.638	.694	1.031
Detroit, Mich.....	.767	.783	(b)	.887
Los Angeles, Calif....	.692	.649	.535	.796
New York, N. Y.	.660	.575	.679	.959
Philadelphia, Pa.	.669	.702	.551	.817
500,000 and under 1,000,000:				
Baltimore, Md.	.653	.519	.613	(b)
Boston, Mass.	.553	.535	.745	1.000
Buffalo, N. Y.	.658	.680	.648	.820
Cleveland, Ohio.....	.728	.652	(b)	.985
Milwaukee, Wis.	.659	.603	(b)	.932
Pittsburgh, Pa.	.736	.721	.684	.806
St. Louis, Mo.	.641	.581	.547	.924
San Francisco, Calif..	.779	.874	.655	.886
Washington, D. C.	(b)	.....	.610	.830
250,000 and under 500,000:				
Atlanta, Ga.	.387	(b)	.423	.389
Birmingham, Ala.....	.479	.403	(b)	.487
Cincinnati, Ohio.....	.591	.513	(b)	.719
Columbus, Ohio.....	.605	.562	(b)	.657
Dallas, Texas.....	.464	.413	(b)	.493
Denver, Colo.	.636	.564	(b)	.797
Houston, Texas.....	.528	.505	(b)	.426
Indianapolis, Ind. ...	.556	.555	.604	.826
Jersey City, N. J. ...	.682	(b)	(b)	.919
Kansas City, Mo.....	.635	.565	.556	.843
Louisville, Ky.	.477	.494	.400	.659
Memphis, Tenn.	.462	(b)	(b)	.382
Minneapolis, Minn. ...	(b)	.578	(b)	.891
Newark, N. J.	.572	.577	.633	(b)
New Orleans, La.	.434	.477	.371	.545
Oakland, Calif.	.852	.862	.673	.915
Portland, Ore.	.800	.809	.762	.943
Providence, R. I.	.667	(b)	(b)	.740
Rochester, N. Y.	.607	(b)	(b)	(b)
St. Paul, Minn.	.685	.640	(b)	.903
San Antonio, Texas....	.444	.392	(b)	.408
Seattle, Wash.	.815	.785	.688	1.010
Toledo, Ohio.....	.763	.724	.665	.925

Source: U. S. Bureau of Labor Statistics, "Hourly Entrance Rates Paid to Common Laborers," *Monthly Labor Review*, February 1943.

[a] Included among 16 manufacturing industries.

[b] Data insufficient to justify presentation of an average.

Appendix Table T.--*Selected Building Trade Wage Rates in Detroit, July 1, 1942*

Trade	Hourly rate	Detroit's rank among the five cities of over 1,000,000 population
Carpenters	$1.500	Third with one other
Electricians (inside wiremen and fixture hangers)	1.650	Third
Painters	1.500	Third
Plasterers	1.675	Third
Plumbers	1.750	Second
Structural--iron workers	1.750	Fourth
Bricklayers' tenders	0.900	Fourth
Bricklayers	1.675	Fourth

Source: *Union Scales of Wages and Hours in Building Trades in Selected Cities*, July 1, 1942, released by the Industrial Relations Division, U. S. Bureau of Labor Statistics.

Appendix Table U.--*Population Growth of the Detroit Area*

Year	Four-county area	Macomb County	Oakland County	Washtenaw County	Wayne County	Detroit
1900	474,590	33,244	44,792	47,761	348,793	285,704
1910	658,487	32,606	49,576	44,714	531,591	465,766
1920	1,355,318	38,103	90,050	49,520	1,177,645	993,678
1930	2,242,573	77,146	211,251	65,530	1,888,946	1,568,662
1940	2,458,139	107,638	254,068	80,810	2,015,623	1,623,452

Source: U. S. Census of Population, 1920 and 1940.

Appendix Table V.--*Public and Private Assistance and Earnings Under Specified Federal Work Relief Programs, Wayne and Oakland Counties, Michigan*

Year	Total	Public funds			Private funds
		General relief	Federal Work Programs[a]	Public Assistance Programs[b]	
1929.....	$ 3,331,606	$ 1,973,835	----------	$1,176,733	$181,438
1930.....	10,950,138	9,305,819	----------	1,325,269	319,051
1931.....	14,299,691	12,271,974	----------	1,555,113	472,604
1932.....	12,667,966	10,137,345	----------	1,545,535	985,086
1933.....	23,213,258	18,344,120	$ 3,414,854	1,213,102	241,182
1934.....	36,644,072	23,626,782	11,681,860	1,335,137	200,293
1935.....	28,076,778	23,109,943	2,926,000	1,860,593	182,242
1936.....	31,508,801	9,443,394	18,273,000	3,809,441	182,966
1937.....	25,878,332	7,017,792	12,477,000	6,208,632	174,906
1938.....	78,577,668	16,554,912	51,759,000	8,088,354	175,402
1939.....	56,038,339	10,251,697	37,292,861	8,292,778	201,003
1940.....	41,967,194	10,107,731	23,679,336	7,981,852	198,275
1941.....	31,511,343	7,103,493	14,504,881	9,731,881	171,088

Source: Social Security Board; *Public and Private Aid in 116 Urban Areas, 1929-40* and *Relief in 116 Urban Areas, May 1942*.

[a]Civil Works program, 1933 and 1934; W. P. A. program, 1935-1941.

[b]Old-Age Assistance, Aid to Dependent Children and Aid to the Blind.

Appendix Table W.--*Dwelling Units Needing Major Repairs and/or without Private Bath in Selected Michigan Cities and the Detroit Industrial Area, 1940*

Area	Percent needing major repairs	Percent having no private bath	Percent needing major repairs or having no private bath
Detroit	6.2	10.2	14.9
Flint	6.2	23.9	26.6
Grand Rapids	6.6	15.6	19.6
Kalamazoo	18.5	22.8	33.2
Lansing	3.9	17.3	19.9
Detroit Industrial Area			
Counties:	7.7	17.3	21.8
Macomb	14.5	49.2	52.8
Oakland	14.6	35.2	41.0
Washtenaw	15.5	34.3	39.7
Wayne	6.0	12.4	16.7

Source: U. S. Census of Housing, 1940.

Appendix Table X.--*Dwelling Units Needing Major Repairs and/or without Private Bath in Five Selected Cities and the United States, 1940*

Area	Percent needing major repairs	Percent having no private bath	Percent needing major repairs or having no private bath
United States total	18.3	45.3	49.2
United States urban	11.5	23.3	28.6
Detroit	6.2	10.2	14.9
Chicago	8.2	17.2	22.5
Los Angeles	3.8	9.1	11.8
New York	3.0	9.7	13.7
Philadelphia	6.7	14.3	18.5

Source: U. S. Census of Housing, 1940.

Appendix Table Y.--*Contract or Estimated Monthly Rent Paid by Nonfarm Families in the Detroit Area, 1939*

Rental groups	Total	Macomb County	Oakland County	Pontiac City	Wayne County	Detroit City	Washtenaw County
Less than $15	38,630	8,234	9,025	1,844	21,189	13,827	2,182
15-29	214,257	11,644	28,252	8,055	168,692	133,843	5,669
30-49	292,500	5,224	22,508	6,424	257,921	220,435	6,847
50-99	89,691	1,149	6,696	1,013	77,754	65,215	4,322
100 and more	10,758	139	1,531	59	8,426	5,473	662
All reporting	646,036	24,390	67,962	17,395	533,982	438,793	19,682
	Cumulated percentage of nonfarm dwellings by contract or estimated rent in the Detroit Area, 1939						
Under $15	6.0	25.6	13.3	10.6	4.0	3.2	11.1
Under $30	39.1	73.3	54.8	56.9	35.6	33.7	39.9
Under $50	84.4	94.7	87.9	93.8	83.9	83.9	74.7
Under $100	98.3	99.4	97.7	99.7	98.4	98.8	96.6
All reporting	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Median monthly rent	-------	$21.75	$27.97	$27.69	$34.23	$34.65	$34.56

Source: U. S. Census of Housing, 1940.

Appendix Table Z-1.--*Median Wage, and Wage and Salary Income Received in 1939 by Workers*[a] *in Cities of over 1,000,000 Population*

City	Total workers[b]	Median wage	Percent distribution of wage and salary income								
			Total	0 to $399	$400 to 799	$800 to 1,199	$1,200 to 1,599	$1,600 to 1,999	$2,000 to 2,999	$3,000 and over	Not reporting
Detroit, Michigan.....	686,860	$1,072	100.0	24.1	14.3	16.4	18.2	10.8	11.3	4.0	0.9
New York, New York.....	3,298,789	912	100.0	25.2	17.6	17.0	14.1	6.8	9.0	5.4	4.9
Chicago, Illinois.....	1,502,602	927	100.0	26.1	17.4	18.5	15.2	7.8	9.7	4.1	1.2
Philadelphia, Pennsylvania..	825,165	788	100.0	30.3	18.4	17.3	13.7	6.4	7.3	2.5	3.6
Los Angeles, California....	661,932	873	100.0	30.7	15.6	17.0	14.9	7.9	8.6	4.0	1.3

Source: U. S. Census of Population, 1940.

[a] Includes all experienced persons in the labor force in 1940 and those who worked 12 months in 1939.

[b] Employed (except on emergency work) and experienced workers seeking work, 1940.

Appendix Table Z-2.--*Amount of Wage or Salary Income for Workers without Other Income, City of Detroit, 1939*

Wage or Salary	Number of workers	Percent
Total.....	535,400	100.0
None.....	28,600	5.3
$1-- 399.....	58,680	11.0
400 - 799.....	83,940	15.7
800 - 1,199.....	97,400	18.2
1,200 - 1,599.....	110,420	20.6
1,600 - 1,999.....	66,960	12.5
2,000 - 2,999.....	67,740	12.7
3,000 and over.....	20,540	3.8
Not reporting.....	1,120	0.2

Source: U. S. Department of Commerce, *Wage and Salary Income and Receipt of Other Income, for Cities of 250,000 or More*, 1939.

Appendix Table AA.--*Income Tax Returns per Thousand Population in Selected Areas, 1940*

Location	1940 population	1940 number of income tax returns	Number of returns per thousand population
United States.....	131,669,275	14,710,681	111.7
Michigan.....	5,256,106	763,340	145.2
Macomb County....	107,638	12,987	120.7
Oakland County...	254,068	43,829	172.5
Pontiac.....	66,626	15,275	229.3
Wayne County.....	2,015,623	419,647	208.2
Detroit.....	1,623,452	353,222	217.6
Washtenaw County.	80,810	12,054	149.2

Source: U. S. Census of Population, 1940; U. S. Bureau of Internal Revenue, *Number of Individual Income Tax Returns for 1940.*

Appendix Table BB.--*Indexes of Manufacturing Wage Earners in the Detroit Metropolitan Area and United States*

Month	Detroit Metropolitan Area				United States			
	1940	1941	1942	1943	1940	1941	1942	1943
	(1939 average=100.0)							
12-month average.	105.7	120.4	125.7	------	107.5	132.1	152.3	------
January.....	108.7	118.9	109.5	155.3	104.0	116.9	139.8	164.8
February.....	107.8	120.3	105.1	157.1	104.2	120.0	142.3	166.4
March.....	108.2	122.9	108.2	159.2	103.8	122.7	144.3	167.6
April.....	106.2	122.4	110.6	[a]161.5	102.6	125.8	146.3	[a]167.6
May.....	103.4	124.6	115.5	161.7	102.1	128.6	148.0	167.2
June.....	97.9	125.6	120.7	162.8	102.5	132.0	149.9	[a]168.8
July.....	83.3	118.1	127.6	[a]163.6	103.1	135.5	153.4	[a]169.6
August.....	88.5	113.7	133.2		107.8	138.4	157.1	
September.....	106.2	120.9	137.4		112.2	141.2	159.6	
October.....	117.0	121.5	143.3		114.8	141.8	160.7	
November.....	120.3	121.0	146.6		116.0	141.3	161.9	
December.....	120.2	115.0	151.2		117.4	141.1	164.6	

Source: U. S. Bureau of Labor Statistics.

[a] Preliminary.

Appendix Table CC.--Permit Valuations of Various Classes of Building Construction in Detroit

Year and month	Number of dwelling units	Total	New residential building	New non-residential building	Addition, alteration, repairs
1941 Total....	10,311	$108,488,952	$52,194,320	$45,097,896	$11,196,736
January.....	627	4,372,026	2,932,615	834,666	604,745
February....	854	7,244,572	4,004,515	2,472,750	767,307
March.....	1,235	9,381,887	6,268,356	2,111,676	1,003,855
April.....	1,212	9,567,527	6,633,750	1,811,212	1,122,565
May.....	957	6,690,520	4,875,820	908,206	906,494
June.....	1,151	8,722,040	5,780,470	1,920,573	1,020,997
July.....	1,243	8,419,425	6,377,418	1,016,830	1,025,177
August.....	947	6,986,186	4,904,880	852,306	1,229,000
September...	844	9,910,673	4,191,208	5,085,392	634,075
October.....	596	5,354,840	3,043,445	881,702	1,429,693
November....	328	9,259,551	1,844,555	6,839,984	775,012
December....	317	22,579,705	1,539,290	20,362,599	677,816
1942 Total....	8,598	61,842,475	38,681,553	15,523,465	7,637,457
January.....	403	6,433,979	1,953,325	4,005,513	475,141
February....	811	4,811,529	3,725,460	512,032	574,037
March.....	1,735	9,798,773	7,967,300	1,141,597	689,876
April.....	951	8,940,583	4,366,921	3,684,234	889,428
May.....	585	4,097,395	2,632,630	961,768	502,997
June.....	600	5,801,988	2,844,714	2,093,728	863,546
July.....	553	4,007,511	2,512,950	621,331	873,230
August.....	499	3,827,467	2,249,950	959,446	618,071
September...	520	3,585,804	2,308,400	598,034	679,370
October.....	625	3,693,576	2,768,950	296,155	618,471
November....	619	3,460,264	2,929,650	99,957	430,657
December....	697	3,593,606	2,421,303	549,670	622,633
1943					
January.....	1,457	4,681,790	3,877,301	219,376	585,113
February....	213	1,714,051	1,017,170	125,904	570,977
March.....	944	5,282,098	3,503,258	1,329,639	449,201
April.....	1,117	5,220,692	4,719,903	41,990	599,889
May.....	636	5,391,983	3,365,000	1,400,117	626,866
June.....	825	6,570,621	3,460,336	2,719,809	390,176

Source: U. S. Bureau of Labor Statistics.

Appendix Table DD.--Cost of living in 34 Large Cities in the United States and in Detroit, Michigan

Month and year	Large cities			Detroit		
	Cost of living	Rent	Food	Cost of living	Rent	Food
	(1935-1939 average=100)					
1939						
March 15	99.1	104.3	94.6	99.8	108.4	94.0
June 15	98.6	104.3	93.6	99.1	108.0	92.4
September 15	100.6	104.4	98.4	100.2	107.8	96.2
December 15	99.6	104.4	94.9	99.8	107.8	94.1
1940						
March 15	99.8	104.5	95.6	99.9	107.9	94.5
June 15	100.5	104.6	98.3	100.9	107.7	98.3
September 15	100.4	104.7	97.2	100.5	107.9	96.0
December 15	100.7	104.9	97.3	100.9	108.5	95.8
1941						
March 15	101.2	105.1	98.4	102.1	109.1	98.4
June 15	104.6	105.8	105.9	106.4	111.3	107.0
September 15	108.1	106.8	110.7	109.6	114.7	108.9
December 15	110.5	108.2	113.1	112.7	117.6	111.4
1942						
March 15	114.3	108.9	118.6	117.1	119.3	118.4
June 15	116.4	108.5	123.2	117.9	112.0	124.5
September 15	117.8	108.0	[a] 126.6	118.4	114.5	124.7
December 15	120.4	108.0	[a] 132.7	121.4	[b] 114.4	131.8
1943						
January 15	120.7	108.0	[a] 133.0	121.0	[b] 114.4	130.0
February 15	121.0	108.0	[a] 133.6	122.2	[b] 114.4	132.3
March 15	122.8	108.0	[a] 137.4	124.0	[b] 114.3	135.7
April 15	124.1	108.0	[d] 140.6	125.0	[b] 114.3	137.4
May 15	125.1	108.0	[d] 143.0	127.3	[b] 114.3	143.4
June 15	124.8	108.0	[d] 141.9	126.8	[b] 114.4	141.6
July 15	123.8	(c)	[d] 139.0	126.0	(c)	138.8

Source: U. S. Bureau of Labor Statistics, *Changes in Cost of Living in Large Cities in the United States, 1913-41* (Bulletin 699); U. S. Bureau of Labor Statistics, *The Cost of Living*, September 15, 1941 - May 15, 1943.

[a] Based on data for 51 cities.

[b] Includes suburban rents.

[c] Data not available.

[d] Based on data for 56 cities.

Appendix Table EE.--*Relief Payments in the Detroit Area*

Year and month	Total	Direct relief	Public assistance[a]
1940			
February	$1,623,632	$937,264	$686,368
March	1,577,521	884,972	692,549
April	1,565,211	869,633	695,578
May	1,519,198	836,159	683,039
June	1,396,496	718,131	678,365
July	1,540,114	852,559	687,555
August	1,520,789	821,426	699,363
September	1,468,960	759,509	709,451
October	1,567,676	822,889	744,787
November	1,421,823	676,327	745,496
December	1,543,451	794,060	749,391
1941			
January	1,546,717	777,771	768,946
February	1,470,428	696,508	773,920
March	1,471,994	682,111	789,883
April	1,478,268	663,020	815,248
May	1,400,932	560,011	840,921
June	1,346,844	488,685	858,159
July	1,386,408	509,059	877,349
August	1,381,421	491,221	890,200
September	1,411,826	503,680	908,146
October	1,482,616	562,549	920,067
November	1,453,325	521,876	931,449
December	1,581,346	627,507	953,839
1942			
January	1,571,431	612,691	958,740
February	1,544,588	587,211	957,377
March	1,579,950	618,583	961,367
April	1,513,197	548,515	964,682
May	1,447,074	470,629	976,445
June	1,431,947	455,062	976,885
July	1,405,220	441,597	963,623
August	1,354,258	407,599	946,659
September	1,304,525	375,499	929,026
October	1,283,052	374,069	908,983
November	1,194,927	306,924	888,003
December	1,379,138	353,893	1,025,245

Source: Michigan State Social Welfare Commission, *Public Relief Statistics*, February 1940 through December 1942.

[a] Includes Aid to Blind, Aid to Dependent Children, and Old Age Assistance.

Appendix Table FF.--*Claims for Unemployment Benefits in the Detroit Area*[a]

Year and month	1940	1941	1942	1943
12 months total	1,908,278	1,242,281	1,481,695	------
January	140,415	70,712	272,431	12,676
February	129,578	66,801	275,858	
March	112,696	59,988	265,866	
April	125,057	66,998	207,285	
May	140,405	58,242	133,952	
June	187,916	47,767	87,515	
July	363,825	173,445	83,340	
August	369,931	194,187	60,834	
September	146,771	116,725	42,480	
October	77,040	84,853	23,668	
November	51,913	64,559	14,804	
December	62,731	238,004	13,662	

Source: Michigan Employment Security Bulletin-1941, 1942. 1940-Monthly Summary of Activities of Michigan Unemployment Compensation Commission.

[a] Includes initial and continued claims.

Appendix Table GG.--Capital Improvement Program of the City of Detroit, 1943-1949 and Reserve

Department	Six-year program	Reserve	Total
Art Commission	----------	$1,860,000	$1,860,000
Board of Education	$8,345,000	15,603,591	23,948,591
Election Commission	50,000	----------	50,000
Fire Department	1,232,500	1,000,000	2,232,500
Department of Health	333,600	1,099,500	1,433,100
House of Correction	73,000	---------	73,000
Housing Commission	---------	257,400,000	257,400,000
Library Commission	583,000	1,307,000	1,890,000
Dept. of Parks and Recreation	1,065,000	9,148,170	10,213,170
Police Department	865,525	840,625	1,706,150
Public Lighting Commission	2,175,000	23,916,368	26,091,368
Public Welfare Department	296,500	368,500	665,000
Department of Public Works	16,587,000	234,431,000	251,018,000
Rapid Transit Commission	---------	133,100,000	133,100,000
Traffic Engineering Bureau	850,000	2,679,000	3,529,000
Zoological Park Commission	---------	1,014,500	1,014,500
General Fund	626,000	---------	626,000
Totals	$33,082,125	$683,768,254	$716,850,379
Department of Street Railways	1,315,000	820,000	2,135,000
Department of Water Supply	3,130,000	13,940,500	17,070,500
Totals	$4,445,000	$14,760,500	$19,205,500
Grand totals	$37,527,125	$698,528,754	$736,055,879

Source: Report of the Mayor's Capital Improvement Program Committee, *A Six Year and Reserve Capital Improvement Program for the City of Detroit, 1943-1949*, January 1943.

(5)

Women's Bureau
U. S. Department of Labor
Washington

July 22, 1945

POSTWAR EMPLOYMENT EXPECTATIONS OF WOMEN EMPLOYED IN THE DAYTON - SPRINGFIELD AREA, OHIO, IN 1944.

(Information was obtained through home interviews with over 1,000 women) From a series of Postwar Employment Studies being carried on by the Women's Bureau.

Number expecting to continue to work in this area.

/1
71,000 women were employed in this area in Spring of 1944.
15,500 expect to withdraw from the labor market when their war job ends or their husbands or other wage-earners return from the service.
55,500 expect to continue to work and all but 6,000 of these in this area.

Comparison with 1940.

/1
37,600 women were in the labor force in 1940.
12,000 more or an increase of 30 per cent expect to continue to work in this area after the war.

Change in employment in manufacturing industries.

28,000 women were employed in manufacturing in 1944.
11,300 women were employed in manufacturing in 1940.

Proportion of women expecting to continue to work, by marital status.

Of the single women, 90 per cent expect to continue.
Of the married, widowed, and divorced, 60 per cent expect to continue.

Change in Government employment.

1,200 women were employed in the Government in 1940.
20,000 women were employed in the Government in 1944, mostly in the Army Air installations.

Source of women employed in war time.

More than half (55 per cent) were employed before Pearl Harbor.
The new workers were mostly school girls and housewives.
Of these new workers
2 of 5 were school girls.
3 of 5 were housewives.

/1 Exclusive of domestic employees.

Employment status of women expecting to remain in the Labor Market.

4 of 5 of all women employed in 1944 expect to continue.
9 of 10 women employed before Pearl Harbor expect to continue.
7 of 10 women not employed before Pearl Harbor expect to continue.
Of those not employed before Pearl Harbor
4 of 5 of the former school girls expect to continue.
3 of 5 of the housewives expect to continue.

Employment expectations of women now employed in --

Manufacturing industries

About three-fourths of the women in the war industry plants, and approximately the same proportion engaged in civilian production, expect to continue to be employed.

Government service

About three-fifths of the women now employed by the Government services expect to remain in the labor force.

Other industries

At least 9 of 10 women employed in 1944 in the service and trade industries plan to work after the war. This brings the estimates of these industries slightly less than those employed in 1940.

Economic status of women expecting to remain in the Labor Market.

Of the estimated 34,500 women living in the family household who expect to continue to work in the Dayton area, at least 9 of 10 of the single, of the married, of the widowed and divorced women, contributed regularly each week to the family household.

The proportion of these women contributors who gave regularly to the household 50 per cent or more of their "take-home earnings"---the money in their pay envelopes after deductions for taxes and bonds had been made---varied according to marital status:

3 of 5 of all women.
3 of 10 of single women.
8 of 10 of married women.
7 of 10 of widowed and divorced women.

The extent to which women are the sole support of aged parents, sick husbands, dependent brothers and sisters, and children, is shown by the following data--

Of the women living in their family households,
31 per cent of the widowed and divorced were the sole contributing earners.
9 per cent of the married were the sole contributing earners.
6 per cent of the single were the sole contributing earners.

Composition of the prospective postwar women Labor Force

Age

About two-fifths are now less than 25 years old.
Nearly one-fourth are now between 25 and 35 years of age.
About one-fifth are now in the older group of 45 years or over.

Marital status:

About two-thirds are now single, widowed or divorced.
About one-third are now married.

Total time worked:

One-third have had jobs for less than 3 years.
One-half have been employed at least 3 years, and one-third for 10 years or more.

Living arrangements:

7 of 10 women are now living in the family household.
3 of 10 women are living apart.

Race:

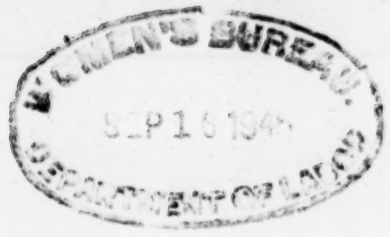
4 of 5 of the women are white.
1 of 5 of the women are Negro.

In-migration:

6 of 10 women lived in the area before Pearl Harbor.
4 of 10 women moved to the area and more than half of these women expect to continue to work here.

Note: "Now" is time of interview in 1944.

Miss ~~Wilcox~~
~~Pidgeon~~
~~Jackson~~
~~Bagwell~~
Hooks
to keep



PROCEEDINGS

Of The

Ohio Institute On Postwar Employment

Of Women

- - -

Ohio State University - Social Administration

Building

- - -

June 23 and 24, 1945.

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COMMITTEES

Program Committee

Miss Lauretta Banks, NAACP of Ohio

Miss Lena Ebeling, Personnel Women of Cleveland

Mrs. Fenton Fish, Ohio Council of Church Women

Mrs. Anna Freeland, Union Buyers' Club

Mrs. Roger Herter, League of Women Voters

Mrs. Joy Seth Hurd, Cleveland Diocesan Council of Catholic Women

Mrs. Mary Kelly, United Auto Workers

Mrs. Elizabeth Magee, Consumers' League of Ohio

Mrs. Bertha Perrin, CIO Auxiliaries

Miss Marie Reid, United Electrical Workers

^Mrs. Charles G. Rose, Womanpower Committee, Cincinnati, Ohio

Mrs. Martha Townsley, Womanpower Committee, Lorain County, Ohio.

Miss Mary Schauffler, Womanpower Committee, Cleveland, Ohio

Mrs. Lee Schmidt, Ohio Federation of Women's Clubs

Miss Rosella Schock, International Longshoremen and Warehousemen Union

Mrs. Esther Schweitzer, International Ladies' Garment Workers Union

Miss Freda Smithburger, Womanpower Committee, Lorain County, Ohio

Miss Norma Vernon, Ohio CIC Council

Mrs. Keith Weigle, State Council of Parents and Teachers

Miss Marie Wing, Consumers' League of Ohio

Mrs. Ben Yenken, Ohio Council of Jewish Women

Chairman: Miss V. Freda Seigworth, YWCA

^Resigned

Arrangements Committee

Mrs. Alvah Petersen, Chairman - Y. W. C. A.
Miss Alma Herbst - Ohio State University
Mrs. Fenton Fish - Ohio Council of Church Women.

Saturday, June 23, 1945. 2:00 P. M.

Call to Order: Miss V. Freda Seigworth.

Greetings - Mrs. Howard L. Bevis.

FULL EMPLOYMENT - Panel

Chairman, Miss Elizabeth Magee, Secretary, National Consumers' League and Consumers' League of Ohio

Participants: Mrs. Bess Barr LeBedoff, Personnel Director, American Shipbuilding Company, Cleveland, Ohio

Dr. Viva Booth, Director of Business Research, Ohio State University

Jacob Clayman, Ohio C. I. O. Council

MRS. BESS BARR LeBEDOFF.

In assuming the responsibility for full employment in a postwar world, management must take the initiative in establishing authority commensurate with that responsibility. Towards this end, I believe a forward-looking management will present some form of job security to labor and, thus, prevent some form of government control. Job security should include yearly income guarantee and sick leave payments in order to maintain a decent standard of living for the worker. Industry must offer something beyond day-to-day existence to workers or see the day of free enterprise limited.

For any postwar plan, industry must first renew its present status in light of its future responsibilities. Matters for consideration are:

1. Reclaiming the rights of management relinquished to government during war. Industry must once again operate unshackled by anything other than an awakened consciousness of its responsibility to the customer, the stockholder, the community, and the employee.

2. Redefining the concept of "management prerogatives". Since to union leaders, "management prerogatives" has come to mean the autocratic right of the few to control the lives of the many and has been the basis for serious conflicts between labor and management, this phrase needs to be redefined in terms of functions of management in order to eliminate the objectionable implications of peculiar and exclusive privilege. Redefined "management prerogatives" would mean those rights or that authority which management must have in order to carry out its function of managing the enterprise. To emphasize this point of view, it is more desirable to refer to "management functions" rather than "management prerogatives." The rights of management are the rights of the employer as owner of the premises and the functions of management are those of the employer in so organ-

izing, arranging, and directing the various components - men, machinery, materials, and money - so as to achieve the objective of the business and its successful operation and survival. Management has a fourfold responsibility:

1) To the consumer - To produce a product that the customer wants at a price the customer is willing to pay.

2) To the stockholder - To make a profit so that the stockholders who own and finance the business will get some return on investment.

3) To the community - To maintain industrial peace, reasonably continuous employment and decent working conditions, and to support community institutions.

4) To the employee - To provide a reasonable work situation to meet the needs of employees.

Protection of management rights is not a matter of defending technical legal rights alone: it is a matter of protecting freedom and authority which management must have if it is to discharge its responsibility of managing the business.

3. The protection of managements functions through intelligent management of people.

The peculiar situation which seems to exist is this: The man or men at the very top of an industry invariably have a sincere and intense desire for better labor relations but the lesser executives both personnel and plant seem bent in "doublecrossing" the boss in his plans for improved labor relations. I believe that women have a very definite contribution to make towards bettering industrial relations. Changes needed to improve industrial relations are:

1) To improve the induction program by use of common, ordinary, old-fashioned courtesy.

2) To develop foremen as leaders with some understanding of the need to get and maintain the good will of employees, to satisfy their desire for recognition and respect, and to give them the opportunity for the best use of their abilities.

3) To bring out a clearer recognition on the part of the personnel department of its functions and to get a staff with the power and courage to carry them out.

It should be the function of this department to train foremen as leaders and to establish sincere, warm, personal relations with the workers. The latter function can only be attained through direct shop contrasts. The place for personnel women to learn about machines, operations, waste, scrap, production, safety, and people is out in the shop. The personnel woman must go into the shop, not as a "snooper" but as one genuinely concerned in the interests of the workers, liking them, willing to listen to their grievances, and having listened, to make an honest effort to do something about them.

Charts, tests and forms are helpful when used with discretion but to secure the wholehearted respect and cooperation of the majority of coworkers requires good, old-fashioned, small-town neighboring. Able, young women in industrial personnel have a toe-hold today in a future whose potential can only be approximated. In order for women to prepare for their postwar future, women must get down to earth, they must learn every detail possible about shops and machines, plant procedures, planning, production and costs, labor unions, and last, but not least, about people.

Management with its privileges of leadership and of private industrial profit has definite responsibilities towards the individuals who labor with management to make that profit possible. When management recognizes and accepts this responsibility towards its coworker, much of labor-management's trouble will be over.

DR. VIVA BOOTH.

In a changing, dynamic economic world, we are still clinging to an outworn capitalistic system that functioned when our economy was agricultural and we were a nation of owners. Three basis shifts have taken place: (1) The shift from an agricultural economy to an urban civilization; (2) The shift in occupations from agriculture to manufacturing and from manufacturing to services; (3) The shift from owners to non-owners of the means of production. In spite of these drastic changes, we still keep our old concepts of capitalism and laissez faire, trying to fit our expanding economy into the old framework. The following dates bring out the shift in occupations:

Year	Agriculture	Manufacturing	Trades & Serv.	Government
1815	35 per cent	19 per cent	22 per cent	2 per cent
1929	10 "	30 "	35 "	10 "
1935 (depression)	7 "	20 "	42 "	16 " (consumer purchasing power)

With technological advance there was need for less workers in agriculture and manufacturing, but for more in the trades and services. More things were done outside of the home. Beauty parlors, laundry and dry cleaning etc. employed more people and will continue to employ more. There is a great need for expansion in public services such as Public Health, Education, and Welfare.

From a nation of owners we have now become a nation of employees. (78 per cent employees and 22 per cent owners and manufacturers).

Another shift has been from the small owner to partnerships and huge corporations.

How much "savings" (pure profit) can our society stand? Collecting money and not spending it is not a virtue as far as our economy is concerned - may as well throw it in the ocean. Collecting money and spending it becomes consumer power. The tendency of business to sell high and pay low destroys consumer power.

The "cushion" (difference) between production per man and wages per man increased at a faster rate than wages during the decade 1919-1929.

Year	Average wage for earner	Production for wage job	Difference
1919	$1163	$2757	$1595
1921	1181	2639	1458
1925	1200	3114	1914
1927	1299	3304	2005
1929	1315	3607	3292

The figures above would indicate that industry can pay more wages (consumer power) without increasing cost to the consumer and without depleting savings for expansion, even though there are heavy corporate taxes. The corporate structure is in the best condition it has been for some time. Implications of these shifts:

1. That we are living in a dynamic and not a static society; that basic changes have taken place and are taking place which require changes in our thinking about social and economic relationships.

2. That producers and consumers are identical. They are one group with different functions.

3. That mass markets are a concomitant of mass production which has been made increasingly possible by technological advances. Mass workers arise in process of production.

4. That mass consumption depends on distribution of money to consumer. In order that the consumer can buy, new rules for distribution of money must be developed.

5. Government must be the agency of control.

JACOB CLAYMAN:

We must not think solely in terms of economics, but in terms of the individual. We CAN do the job to provide all that the human being needs. Why can't we gear our economy to full employment? We must throw aside outworn concepts. We have the raw materials and untapped resources for all human needs. We know what those needs are.

Industry wants full employment. Labor wants full employment. Labor, Agriculture, Industry and Government can do the job. We think of Government as an interloper. Government is community will - you and I in active participation. Labor, Agriculture and Industry on its own cannot do the job. Never did at best. Management fears Labor. Labor fears Management. Labor on its own does not have the know-how. Labor does not own the tools. Labor fears a conspiracy to eliminate Labor as a social and economic force. Labor and Management must have Government.

The Murray Full Employment Bill recognizes the responsibility of Government for a job for every man and woman willing and able to work within the free enterprise system. If private enterprise fails to do the job, Government must step in.

We will get full employment in America! Ordinary folks are going to demand it. Totalitarian governments have it. Will we get full employment the democratic way or otherwise?

Saturday, June 23, 1945. - 4:00 P. M.

FACTS AND FORECASTS FOR EMPLOYED WOMEN OF OHIO.

Chairman: Mrs. Alvah Peterson, Chairman, State Public Affairs Committee, Y.W.C.A.

Speaker: Mrs. Martha Ziegler, Regional Representative, Women's Bureau, U. S. Department of Labor.

MISS MARTHA ZIEGLER:

Countless times we hear that women will automatically leave the labor market when the war is over and return to their homes. Some of them will do that for a while. It is easier to say they will leave the market than to face realistically the many problems involved.

From The Women's Bureau, we know that the number of women workers has increased. In 1940 there were eleven million women workers with another two million seeking work. In Ohio there were 1,240,000 women working in 1945 as against 553,000 employed in 1940. It is estimated that 800,000 women, or 160,000 more than in 1940, will be in the labor force in Ohio after the war.

Ten cities have been surveyed by the Women's Bureau for the purpose of finding out how many women want to continue working after the war. In 1944, 12,000 women were interviewed by the Women's Bureau and in 1945, another 10,000. In five west coast cities approximately 80 per cent of the women intended to remain in the labor market.

One of the recent Postwar Employment Studies carried on by the Women's Bureau was in the Dayton-Springfield area which includes five counties. Results of this study, not yet published, were summarized by Miss Ziegler as follows:

1. Of 1150 women interviewed in manufacturing, trades, and service, 55 per cent had been employed before Pearl Harbor.

2. 71,000 women were employed in area in Spring of 1944; 37,600 were in labor force in 1940. (Exclusive of domestic employees).

3. 15,500 women expect to withdraw from the labor market when their war job ends or their husbands or other wage-earners return from service.

4. 55,000 expect to continue to work; 49,000 in Dayton-Springfield area; 6,000 elsewhere. Women in the labor force will be increased by approximately 18,000 over 1940 figures or by 30 per cent.

5. 28,000 were employed in manufacturing in 1944, 11,300 in 1940.

6. 20,000 women were employed in government in 1944, 1,200 in 1940.

7. 2 out of 5 new workers were school girls; 3 out of 5 were housewives.

8. Of the 1,150 women interviewed, 80 percent wanted to continue working. Some reported they would leave area but would continue working elsewhere.

   a. 90 per cent were single - wanted to continue on jobs. b. 60 per cent - married, widowed or divorced. c. 4 out of 5 of all women employed in 1944 wanted to continue. d. 9 out of 10 employed before Pearl Harbor wished to keep on working. e. 7 out of 10 employed after Pearl Harbor wanted to continue working: 4 out of 5 former school girls and 3 out of 5 housewives.

It was also discovered in survey that many of women needed to work because they had economic responsibilities.

a. 9 out of 10 were contributing regularly to family income. b. 3 out of 5 women contributed more than 50 per cent of their "take-home" pay to the household. c. 9 per cent of married women were sole contributors to the family income; 80 per cent contributed more than half of their "take-home" pay. d. Among the widowed and divorced, 31 per cent were the sole support of the family group; 70 per cent contributed more than half of their "take-home" pay. e. Among single, 6 per cent were sole contributing earners.

Other surveys were pointed out by Miss Ziegler to serve as comparisons to the Women's Bureau Survey.

The Economic Development Committee of the Indianapolis Chamber of Commerce made a survey in 1944. Eighty-nine firms (a 10 per cent sample) gave lists of their employees to whom questionnaires were mailed. A 35 per cent return was achieved. Seventy-seven per cent of the women workers wished to be employed after the war.

The Northwestern Life Insurance Company conducted a similar survey. Women 25 years of age and over from Chicago, Minneapolis, St. Paul, and a Connecticut area were questioned. Seven out of 10 of the women who responded to the survey indicated they wished to continue working after the war. These surveys show that there will be many women in the labor market in the postwar era.

In the Dayton-Springfield area, three-fifths of 20,000 in Government service wish to continue to be in the labor market. It is presumed that most of these workers are "white collar" employees. Manufacturing industries and Government jobs account for three-fourths of the increase of workers in the Dayton area. While most of the workers came from schools and homes, workers from service occupations have also moved into these jobs. Of those left in the service and trade industries, nine out of ten will probably continue in these industries. Studies of the Census Bureau indicate that the woman who has left the drug store, trades or service fields is reluctant to go back to this type of employment. A program which would in-

crease the attractiveness of these fields is needed, Miss Ziegler added.

In Dayton, many girls under twenty went into jobs before completing High School and many wish to remain in their jobs. Many observers are concerned about the young people who did leave school and it is hoped some system can be devised so that these young workers can go on with their school program. Such plan might help to remove temporarily some people from the labor market.

In the Dayton area 15 per cent of women working were 50 years of age or older. The increase in employment during war has come from the 14 to 20 year group and from the group of 35 years of age or older. Those workers between 20 and 35 have always been pretty much a part of our labor market. A large proportion of the older women work because of economic responsibility.

Negro women workers were the last to be employed and will be the first to be laid off. In 1940,two out of every five Negro women were employed as contrasted with two out of eight among white women.

In concluding, Miss Ziegler emphasized the economic responsibility of many women workers. In 1939 - 48 per cent of all male workers earned less than $1,000. From these figures it can be realized that change in prices or change in men's wages is necessary in the economic world in which we live.

Discussion.

MRS. SILLONS:

In the employed age group from 20 - 45 we will have to consider that this age group is less in war period because of armed service enlistment. This age group will be a large part of post-war labor market when service men and women return to seek jobs.

MRS. HURD:

The birth rate will be affected if 80 per cent of the women wish to continue to work. If the male worker could always have steady employment women would not have to seek jobs.

MISS MARY CORRE:

Miss Corre pointed out dangers to family life when both male and female members of family work. This point was emphasized by Mrs. George Nelson who said that studies in England indicated that when mothers were employed there was a greater incidence of emotional instability among children. Mrs. Nelson also stated that household work has always been presented as unattractive and that other compensation should be pointed out.

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Saturday, June 23, 1945. 8:00 P.M.

TRAINING AND PLACEMENT

Chairman: Miss Mary Corre, Director, Vocational Guidance Service, Cincinnati Public Schools, Cincinnati, Ohio.

Speakers: Miss Lena Ebeling, Personnel Director, Sherman-Williams Company, Cleveland, Ohio.

Dr. Ernest L. Bowman, Special Field Representative, War Manpower Commission of Ohio.

MISS LENA EBELING: EMPLOYMENT

The primary function of a public employment service is to reduce the waste of time, effort, and money in bringing jobs and worker together. The extent to which it can accomplish this purpose depends not only upon the efficiency of its own personnel and organization, but also upon the degree to which employers cooperate to permit it to become a factor of real importance in the labor market. As it is able to develop its service, it can speed up the employing process by centralizing information about openings and by providing a clearing house for those seeking employment in the local market. In that way it can eliminate much of the expense and loss of time involved in unorganized job hunting and labor recruiting. Since the advent of unemployment compensation, the employment office is assured of direct contact with the greater part of the available labor supply, so that the principal needs are now the increase in the efficiency of its own staff and the close cooperation of employers in advising it of available jobs.

While the large and well-known concern may normally have sufficient applicants at its establishment to enable it to fill ordinary openings, this is frequently not the case for the more specialized types of positions in which shortages more readily occur. Here, even the employer who maintains an elaborate employment office of his own can benefit by the aid of a public employment service with widespread contacts. Through the service, the small employer, who has a less developed employment system can gain access to the main labor pool of the community.

As its staff becomes more experienced, the public employment service should aid the employer in a second way, by lessening the volume of misfit hiring, and thereby help to reduce needless labor turnover. The employment office through its records of available workers in the area should be able, better than any other agency, to assist the employer in locating the right person. A third function of public employment service is the guidance of the transfer of labor. Through the development of an effective clearance system, employment offices can be kept informed of the location of labor shortages, and can substitute a directed movement of workers, selected according to definite specifications, for the unguided roving and migration of labor characteristic of the past.

Quite as important as the shifting of labor from one locality to another is the transfer or workers across occupational and industrial lines. This transfer involves both an acquaintance with the types of employment in which shortages or surpluses exist, or are imminent, and an understanding of the similarities and differences in the skills required in a wide range of occupations. As this information becomes more adequate, the employment office will have a valuable guide in shifting workers among occupations. This type of

service should become of great assistance both in hastening the vocational readjustment and the reabsorption of workers displaced by technological change and in increasing the volume of temporary employment of persons employed in seasonal industries.

A fourth function, and one of the utmost importance, is that of vocational guidance of the young. In the past, in most communities the youth about to enter his working career has had no reliable source of information and advice on occupations and industries, the qualifications demanded, the conditions of employment, rates of compensation, and opportunities of advancement. No agency should be in a better position to meet this need than a properly staffed public employment service in constant contact with the labor market. Vocational counseling should not be considered a by-product or side line of employment service, but a fundamental obligation of the organization.

Public works programs afford a fifth field of activity for a public employment service, of special importance during times of depression. In fact, one of the first tasks which arise in launching a large public works program is to set up machinery for the selection of labor. Few projects are so simple that just anyone can be employed, and, if they were, there would still be the problem of providing an orderly procedure for recruiting workers and preventing outside labor from flocking to the scene of activity. If the work is to be performed with reasonable efficiency, it is essential that care be exercised in selection. Public employment offices are the natural agencies to handle this phase of the program.

Another purpose served by a comprehensive system of employment offices is that of developing statistics and other types of information about the labor market. These data are useful for vocational guidance and rehabilitation, the planning of apprenticeship and vocational training programs, the transfer of workers from declining areas, the formulation of public works programs, and for many other purposes.

Looking into the future, many students of the employment problem believe that an efficient public employment service will tend, through the eventual organization of the labor market, to minimize the size of the labor reserve and hence to reduce the volume of unemployment. The contention is this: In order to operate successfully and meet peak demands, industry must have a reserve of labor available to satisfy its maximum requirements. In practice, each industry, and in a measure each establishment, tends to attach to itself a body of workers on whom it can call in times of increased activity. As a result, many small labor pools are created. Through the development of central employment offices these pools can be merged, and the needs of industry can be satisfied with a smaller aggregate labor reserve. In times of prosperity, therefore, industry can expand beyond existing limitations imposed by the size of the labor supply and can gradually absorb into regular employment a portion of the former reserves, thereby reducing the number of casual workers and lowering the normal level of unemployment. This, however, assumes a higher degree of organization of the labor market than is likely to be attained by public employment services for many years, but it represents an important long-range objective.

Finally, a strong nation-wide employment service is essential to the administration of unemployment compensation and to any broad attack upon the problems of unemployment.

The primary objective of any employment service is placement, which represents the successful completion of a series of processes in bringing together workers and employers; it is the yardstick by which the efficiency and value of the service must chiefly be measured.

Complete and accurate information about employers' openings is as essential to placement as adequate registration records. In general, experience indicates that placements can be handled most satisfactorily if the interviewer who makes the selections and referrals for the occupational group also takes the orders. Employers feel they get better service when they have direct contact with the interviewer who makes the selection.

An interviewer will make the best placements if he has visited an employer's place of business and knows about working conditions and the type of worker the employer tends to hire. Each establishment develops its own personality and individuality by the type of employees it selects. Selection of applicants for referral on employers' orders must be based solely on ability to do the job.

Orders for sub-standard jobs come from many industries, but are most common in domestic and personal service. A public employment office must not attempt to dictate to employers what they should pay; nor should it assist in lowering labor standards by trying to fill sub-standard openings. In taking such an order an interviewer may well point out to the employer that the office may have considerable difficulty in filling it because applicants are insisting on higher wages or different working conditions.

If organized employment service is to accomplish its purpose, the local employment office must be more than a point where workers and jobs may meet. It must be an agency whose service proves its own usefulness and commands the confidence of employers, employees, and the community. To attain its proper position in the labor market requires competent and vigorous management, capable and well-trained personnel, and effective local organization and procedures.

The influence of management in the Employment Service sets the pace, the spirit, and determines the effectiveness of placement activity. No matter how capable individual staff members may be, they will not achieve maximum results without leadership, supervision and the coordination of their efforts. The primary responsibility for direction, of course, rests with the manager of the office,- and his importance increases with its size.

The success of employment service largely rests on the ability of the interviewers in the local offices. Unless salaries are sufficient to provide a capable technical personnel, employment service will never be able to fulfill its obligation as the central agency for placement and vocational counselling. Good employment interviewing, counselling and placement requires skill, special training in techniques and experience - therefore must pay.

Lay participation has always been considered a very important part in the proper functioning of a public employment service. There have been advisory councils on the national level and state levels. The ability of a local advisory committee to render useful service depends upon the local head of the U.S.E.S. From our experience in

Cleveland, we are convinced that community participation in the U.S.E.S. is a must.

At the end of the war, there will be close to 143,000 more workers in Cleveland than before the war. Of this number, some women will wish to leave the labor market, older workers will retire, some young people will return to school and immigrants will return to their own communities. It is anticipated in the Cleveland area that 225,000 people will change jobs: 140,000 war workers plus 85,000 returning service men and women. From this will be subtracted the number leaving the Cleveland Labor Market.

For Ohio, it is expected that the number to change will be 950,000: 500,000 war workers and 450,000 veterans. This figure represents 40 per cent of total number employed in 1940. The comparable per cent for Michigan is 60 per cent.

Such dislocation presents many baffling social problems to be solved. Solutions suggested:

1. Adequate employment centers for placement and guidance.
2. Retraining of war workers for different occupations.
3. Gradual contract cutting.
4. Withdrawal of women (married).
5. Encouragement of young workers to return to school.
6. Speedy removal of government war controls over industry.
7. Public Works program as supplement to private industry.
8. Promise of definite number of jobs by private industry while retooling.

DR. ERNEST L. BOWMAN. TRAINING

Since October, 1943, 10,000 workers per month have been leaving Ohio war industries (some army inductions). 20,000 left in August, 1944. This drop in employment reflected the optimism over the European campaign. While the number of workers has been decreasing, production has been steadily increasing.

Four Tasks of Manpower Commission:

1. Locating need for workers in war industry
2. Locating potential workers
3. Transferring them where needed
4. Keeping them on the job at maximum efficiency

We do not know about postwar employment. We can only make shrewd guesses. Employers think women will still have a solid grip on clerical jobs except where technical skills are required in combination. After the war, women will hold monopoly on jobs in assembly of delicate mechanisms, inspection, and operation of light machines - jobs where they produce more than men.

There will be wide-open opportunity for women with one or two years of college as junior technicians, laboratory assistants, etc. Commercial designing will be a good field for women. They need two years in art school.

Four forms of training are supported by government during war. It may be that government supported plans will end July 1.

1. Vocational training for war production workers. Tendency is to encourage public schools to take over under Smith-Hughes Act. This would be revolutionary to schools because they theorize too much and include too much culture. It would mean an emphasis on job needs rather than cultural values. Agriculture, trade, industrial, and distributive education, and Home Economics are subjects included.

2. Engineering, Science and Management, War Training Program - training of technicians at college level. More technical education to be provided by industry and student financing, possibly as university extension work.

3. Training Within Industry Program - Job Instruction, Methods, Industrial Relations Training. Industry is sold on the value of it now and will be carried on at employers' expense when government's program is discontinued.

4. Apprenticeship - training service - a prewar service and will continue. Doesn't affect women much.

United States Employment service through its 83 offices in Ohio placed from 60,000 to 100,000 each month. Ohio has oldest free public employment service in U. S. First service offered in 1890. In 1935 Public Employment was made a national system. During war was under W.M.C. Various suggestions now being made about its future services: one that it become an advisory service to employers about employment, since so many employers have no personnel department.

Sunday, June 24, 1945. 10:00 A. M.

STANDARDS OF EMPLOYMENT

Chairman: Mrs. Clyde C. Shively, Ohio League of Women Voters, Columbus, Ohio.

Speakers: Miss Martha Ziegler, Regional Representative, Women's Bureau, U. S. Department of Labor.

Miss Elizabeth Magee, Secretary National Consumers' League and Consumers' League of Ohio.

Miss Christine Walker, U.O.P.W.A. International Representative in Ohio.

MRS. CLYDE C. SHIVELY:

The attitudes of management, labor and government relative to standards are reflected in legislation. In the public interest both good legislation and adequate enforcement are essential. For adequate enforcement, there is need to increase number of enforcement officers and to train them for this work.

MISS MARTHA ZIEGLER:

Miss Ziegler referred to her Saturday talk for a factual background. The most important standards for employment she said are not those set by law, but by personnel policies.

Ziegler

Importance of good personnel policies was brought out during early war years when expansion was so rapid. The lack of opportunity for selection of employees at first resulted in the development of sketchy training plans later. Adequate training plans for the new type of workers without previous factory experience had to be developed.

Good personnel policies, applicable to male and female include

(a) Availability of wholesome food within the plant
(b) Transportation plans
(c) Good placement procedures.

These have been adopted in many plants because of the competition for scarce manpower and have proved their worth. Women's Bureau Bulletins cover requirements on night work, weight lifting, etc.

Already the trend for women's employment is away from the heavy industries where they have been well paid during the emergency. Women displaced by cutbacks in aircraft production will have to find other places. This shifting from manufacturing into service industries will mean a sacrifice in wages, although the wage levels for service industries and domestic service are now higher than pre-war. These wage increases should be maintained.

Conditions in the service industries must be made more attractive, working conditions improved. Domestic service can be improved by group action among women without legislation. The Chicago Household Employer's League, sponsored by the Y.M.C.A. is an example. Each employer member agrees to: (a) Standard pay; (b) Standard hours; (c) Vacations; (d) A certain standard of work is required of the household employees.

Minimum wage laws are still important to women workers. The Federal Fair Labor Standard Act still does not cover most of them, particularly in Service.

Equal pay legislation has been introduced in many states. Five states now have such laws. The Pepper-Norton Bill, which asks for the "rate for the job" was recently introduced in Congress to cover Federal fund employment. Enforcement of such laws is difficult but not impossible. The best form for rate for the job legislation is still debateable. Social workers and teachers need protection to insure salaries more commensurate with training required for their work. Illinois has just passed a law establishing $1200 as a minimum.

MISS ELIZABETH MAGEE:

The Ohio Minimum Wage Law, which was passed in 1933, is a good law but suffers from bad enforcement. Only four orders have been issued under the law. These orders established rates for laundry workers, dry cleaners, restaurant and cafeteria workers, and for beauty operators. These orders need revising to bring them up to date. They are hopelessly out of date. The minimum rate for laundry workers in 1944 was still 27 1/2 cents an hour.

Mimeographed copies of average hourly earnings in 1943-1944 in Ohio cities for workers in laundries, hotels, restaurants, drug, grocery, department, clothing and limited price variety stores, and in office buildings were distributed. This material was compiled by the

Consumers' League of Ohio.

Present machinery under minimum wage law provides for new boards to be called from time to time. New boards will be needed to set up standards in new fields, particularly for workers in retail stores and for confectionary workers.

Some states such as Washington and Oregon have miscellaneous boards.

Minimum wage laws should cover men as well as women. It may seem unbelievable that any man would be paid less than the minimum wages set up for women. Yet we know that it is true. In New York by the "back door", the law provides that no man shall be paid less than provided for in any law regarding women's pay rates.

Where labor bills met with little success in the State Legislatures, more pressure has recently been put on a minimum wage for men and women.

Rhode Island is the only state which so far has adopted over-all minimum wages for men and women. No state has passed a model State Fair Labor Standards Act. Minimum Wage laws apply in Ohio only to those industries in inter-state commerce which come under the Federal law, and to the four special industries which come under orders in this state.

MISS CHRISTINE WALKER:

White-collar workers' wage scales are at a disadvantage during wartime, and are further threatened upon reconversion. The conference method for settling disputes about reduction or wages will apply mainly to organized groups. White-collar workers, because they are largely unorganized, will have their wage level decided by management only.

Since it is agreed that strikes are no longer the way for labor to gain recognition, legislation and arbitration are expected to gain the demands of labor. This program lessens the disagreement in methods between organized labor and white-collar workers.

How can white-collar workers have their fourth freedom--"Freedom from Fear"-when they are worried about their status under reconversion and in a possible depression? The Pepper-Norton Bill, backed by the unions, is to the interest of white-collar workers as well. The chief opposition to union membership among professional and white-collar workers is based on loss of prestige. Miss Walker believes women workers should be represented by women.

Sunday, June 24, 1945. 1:00 P.M.

COMMUNITY FACILITIES FOR EMPLOYED WOMEN.

Chairman: Mrs. Fenton Fish, Chairman, Industrial Committee, Ohio Federation of Protestant Church Women, Columbus,O.

Speakers: Mrs. Joy Seth Hurd, President, Cleveland Diocesan Council of Catholic Women, Cleveland, Ohio.

Mrs. L. D. Martin, Chairman, Health Department, Council of Parents and Teachers, Toledo, Ohio.

Miss Marie Wing, Attorney, Social Security Board, Cleveland, Ohio.

MRS. JOY SETH HURD: DAY CARE CENTERS

Mrs. Hurd reviewed the history of the day care movement, particularly in Cuyahoga County; its expansion under WPA during depression years when many mothers had to work outside the home to bring the family an income, and the extension of centers during the war under the Lanham Act. The provisions of the Lanham Act have been extended by Congress on a 90-day basis, renewable each 90 days during the emergency. When Lanham public funds withdrawn, day care centers cannot continue at present rates of fifty cents a day per child. Since many mothers will have to continue working, day care centers must continue to be provided in the community. At present 52 per cent of the mothers of children in the centers are in war production work and 48 per cent in essential industries.

Mrs. Hurd pointed out the effects on the family when mothers must work away from home and urged community action to assure adequate wages to the wage earner so that two incomes are not needed to support the home decently. She emphasized the function of the mother in developing children for citizenship. In the questions, it was brought out that many mothers are the only wage earners in the home. As Mrs. Hurd had suggested that war plants should send home first mothers of children, the question was raised: "Who in any war plant is to decide which women are to go home first?" Under senority rules, need for child care and need for added income are not taken into consideration. Mrs. Fish emphasized the need to educate school boards in each locality to accept their responsibilities for pre-school age students and after-school supervision for older children. In response to the question, "What will be done when Federal funds are no longer available for day-care centers?", Miss Magee answered that the Boards of Education can handle this on a community basis.

MRS. L. D. MARTIN: PUBLIC SCHOOL LUNCHES

Mrs. Martin brought up the necessity for school lunches for health and nutrition. The P.T.A. has been promoting legislation for school lunch programs. An Ohio school bill recently passed included subsidies for school lunches. Many schools run lunch programs which are not subsidized by the State or Federal Government. In Toledo for instance, she knows there are as many schools where the lunch program is not subsidized as where it is. Eight hundred and ninety-two schools in the State now serve meals on a subsidized basis. Certain requirements must be met by school lunch programs which qualify for the subsidy. They must be non-profit schools; must match Federal with local or State funds (in Ohio these funds must be local); and must match the type of lunches prescribed following the basic seven nutritional principles.

Community donations in kind are counted toward matching funds. More red points are granted to Federally subsidized lunch rooms because their protein and fat balance requirements to meet the basic seven exceed the usual red point allotments. Mrs. Martin recommends that lunch rooms be tied in with educational programs. The lunch

room is not a relief program. Poor nutrition showed up as much in high income families as in low income families on school checkups and in draft physical examinations. The responsibility should be placed on the State Departments of Education to use the lunchrooms as part of an educational program in proper nutrition.

The Unwin-Flanagan Bill, House Bill 3370, now pending in Congress ties the nutrition program into the general educational program. Any school or P.T.A. desiring help in starting a lunchroom program will find excellent material in government publications obtainable from the Superintendent of Documents. The County Nutrition Committee is available to make surveys where there is a demand from parents, P.T.A. and other groups for action on the lunch program.

MISS MARIE WING: SOCIAL INSURANCE AND PUBLIC ASSISTANCE PROGRAMS AVAILABLE TO WOMEN WORKERS

I shall give you tonight a brief outline of social insurance, public assistance, and one or two other programs administered by the State or Federal governments, which particularly affect employed women. This is really by way of a reminder as to programs with which those attending this institute are undoubtedly already familiar. I shall hardly do more than mention each one and then refer you for full details of these programs to printed matter on hand for distribution. You may wish to request larger quantities of such printed matter to distribute to all members of your organization. I stress this matter because it seems most important that the women in our communities know of these services and opportunities available to them.

Unemployment compensation is a federal-state cooperative program as provided by the Social Security Act and the State Unemployment Compensation Law. Benefits for eligible unemployed workers, both men and women, now range from a $5.00 minimum to a $16.00 maximum per week, depending on the worker's earnings. The maximum amount that any worker may receive is 18 times his weekly benefit amount. Legislation now being considered by the Ohio Legislature proposes to increase the minimum weekly benefit to $7.00 and the maximum to $21.00, and the maximum duration period to 22 weeks.

When women workers become unemployed it is important that they immediately register at the nearest U. S. Employment Office where representatives of the Ohio Bureau of Unemployment Compensation will take their claims. There are many more details about this program that should be carefully studied in the information booklets furnished by the Ohio Unemployment Compensation Bureau.

Through 58 offices and 33 branch offices of the U. S. Employment Service in Ohio, women workers may register and be referred to jobs for any type of work whatever. This service is without cost.

Old Age and Survivors Insurance covers millions of wage and salary workers in this country, and their families, under the Social Security Act. Monthly benefits go to any qualified worker at age 65 or over, to his wife at the same age, and to his young children. Women workers when they become 65 are eligible for retirement benefits in their own right. I shall briefly list the various types of benefits under this program to which women in various relationships are entitled

(a) Women workers 65 years or over who have worked in covered employment at least one half of the period since June 1, 1937, to the time they become 65 years old or to the date they retire. The amount of monthly benefit will be a percentage of their average monthly wage plus a credit for each year of coverage.

(b) Wife of a wage-earner who retires if the wife is 65 or over, or when she reaches 65. In this case the additional benefit paid to her is one-half of the amount paid to the wage-earner as his monthly benefit.

(c) The widow of a deceased wage-earner if she is 65 or when she becomes 65, receives a monthly benefit equal to three-fourths of the monthly benefit amount to which the wage-earner was entitled.

(d) The widow of a deceased wage-earner, no matter what her age, if she has minor children of the wage-earner in her care. In this case she receives a monthly benefit equal to three-fourths of the deceased wage-earner's benefit.

(e) A deceased wage-earner's children up to 16 years or age, or 18 if they are still in school, are entitled to a monthly benefit amount equal to one-half of the wage-earner's monthly benefit. These children's benefits are paid to the widow for the use and benefit of the children. The total amount a family may receive cannot be more than $85 a month or 80 per cent of the wage-earner's average monthly pay.

(f) The mother of a deceased wage-earner if wholly dependent upon him at his death, is entitled to a monthly benefit equal to one-half his monthly benefit provided she is 65 years old or over, and that he leaves no widow or minor children entitled to such benefits. The Social Security Board has recommended that the act be amended to reduce the age at which women in any of the above relationships may receive monthly benefits from age 65 to 60.

Aid to Dependent Children is a federal-state cooperative program provided for in the Social Security Act, by which the federal government matches dollar for dollar amounts paid by states as assistance to needy children. Under the Ohio law a child must have been deprived of care or support because of the death of a parent; because a parent is unable to work by reason of physical or mental illness; or because support cannot be secured from a parent who is continually absent from the home. A child must be living with his own parents or with a relative by blood or marriage, and must be under 16 years of age or between 16 and 18 regularly attending school. There is no limit set by the state law for the amount which can be paid for such children's assistance except that it must be based on their need. Under the Social Security Act the amount the federal government can pay is limited to $18 a month for the first child in a family and $12 for each additional child. Such aid is applied for at the county offices of Aid to Dependent children. These payments can be used as supplementary to the child's insurance benefits under the old age and survivors insurance program administered by the Social Security Board.

Vocational Rehabilitation is available to all disabled persons having an employment handicap. The Federal office of Vocational Rehab-

ilitation is a unit of the Federal Security Agency. It works in cooperation with the states by the allocation of federal funds for grants in aid to states to be used for vocational rehabilitation. The program includes retraining of handicapped persons, medical and surgical diagnostic services and treatment by practicing physicians, also hospital care and vocational counselling. The headquarters of the Ohio Vocational Rehabilitation Bureau are in Columbus and there are local offices in most of the counties of the State, through which application for such service may be made.

Summary I wish to emphasize the great need for members of all women's organizations to know as much as possible about the programs outlined above, and to pass on this information to women who can avail themselves of such services or aid. Unless such information is widespread, many women go on for months or years without having the help they could have just because of lack of knowledge that it is available. Citizens are often critical of government agencies, whether Federal or State, for carrying on so-called publicity campaigns. If government agencies are not authorized to spread such information, it behooves citizens' groups to carry the good news of helpful programs to their friends and neighbors. It is important to remember also that all knowledge on the part of citizens as to service or aid programs administered by the government makes for a higher standard of administration. I wish to remind you again that details of all these programs may be found in the pamphlets and printed matter which are here for your convenience.

Sunday, June 24, 1945. 2:30 P.M.

Chairman: Miss V. Freda Seigworth.

Speakers: Mr. Randle E. Dahl, Regional Employment Analyst, Bureau of Labor Statistics, U. S. Department of Labor.

Miss Mary Schauffler, Chairman Womanpower Committee, W.M.C. Cleveland, Ohio.

MR. RANDLE E. DAHL. POSTWAR EMPLOYMENT AND STATISTICS ON EMPLOYMENT

The question of postwar employment is a huge one, and is part of the whole problem of our postwar economy. There has been a great deal of talk about full employment in the postwar period. Full employment represents a condition of employment which has never been reached in peacetime years. The great problem of full employment will take all of the patience, intelligence, and unselfishness which our society and its segments can achieve.

When we think of postwar employment, we must think of such pressing economic problems as:

1. Our huge government debt and its effect on our general fiscal policies and practices, and the possibility of a relatively heavy federal tax program for an indefinite period after the war.
2. The greatly increased productivity of the American working man.
3. The possibility of a postwar inflation rising from inflationary factors existing in our economy.
4. The possibility, also, that we may enter a period of postwar deflation caused by some of the deflationary factors existing in our economy.

5. The large number of women and children who have joined our working force.
6. The serious dislocation in employment resulting from wartime strains and industrial concentration.

The demobilization of the military forces and of industrial workers present a problem of great magnitude as is made apparent in a recent pamphlet issued by the Bureau of Labor Statistics, entitled "Relative Severity of Postwar Demobilization by States". Large numbers of women have entered industrial employment and, according to recent studies by the Bureau of Labor Statistics and by Women's Bureau, many of these women hope to stay in industry. He also pointed out that the results of the war were adversely affecting our important social asset of an educated youth.

In a recent speech, Commissioner A.F.Hinrichs of the Bureau, indicated certain actions which might be helpful in smoothing over some of our postwar employment difficulties. Mr. Hinrichs suggested:

1. The need of adequate facilities for re-employment, particularly, a strong employment service and the provision of financial aid in relocating workers.
2. Necessity of training and retraining persons demobilized from industry or the armed services in various peacetime skills.
3. The use of every means to keep temporary employment at a minimum after hostilities cease.
4. The importance of sound, contract, termination policy on the part of the armed services.
5. The desirability of controlling and expediting withdrawals from the labor force, particularly of women and children.
6. The control of additions to the labor force, in order to slow down new entrants, especially by encouraging the two and one-quarter million boys and girls, who enter the labor market each year, to continue their education.
7. All possible effort to expedite the rate of recovery of private enterprise.
8. The development of a public works program to produce employment where and when needed.
9. Encouragement of business to make fairly definite commitments for hiring individuals at some future date after necessary retooling has taken place.

The postwar prognostications of a number of our leading economists and research institutions show no agreement as to what they expected our postwar economic picture to be. There are so many disturbing factors in our economy that future development cannot be predicted. So much depends upon the policies and practices adopted by government as well as those adopted by private industry.

Mr. Dahl briefly reviewed the statistical information which the Bureau of Labor Statistics has made available to the public; the price and cost of living information which is regularly gathered and published by the Bureau; the wage information and wage studies of individual industries in various areas which are currently being published; the employment statistics which the Bureau has published for many years, and the new program of state employment statistics upon which the Bureau is now working. The speaker had brought with him copies of the various publications about which he talked, and these were made available to those attending the conference.

MISS MARY SCHAUFFLER: WHAT THERE IS TO DO

This Institute has been sponsored by about fifteen different women's organizations of the State. It demonstrates how these groups, although striving for various specific objectives, can work together on a common problem. It is hoped that cooperation will not cease at the end of this Institute, but that it may be continued on a local as well as a statewide level to the end that conditions of employment for women may be improved and advanced in the postwar period.

Many suggestions for cooperative effort have been made by the speakers of this Institute. Only a brief summary of these suggestions can be given here.

Before action should come understanding. To understand our present economic order and the reasons why increasing numbers of women are working outside the home, it was pointed out that there must come a recognition of the meaning of the basic changes that have come about in the shift from an agricultural economy to an industrial economy, from a nation of owners to a nation of non-owners, and from the redistribution of workers among the major industrial groups. Such understanding will tend to break down many of the prejudices which are the survivals of attitudes developed in an agricultural economy and which prevent a reasonable approach to present day problems of working women.

A major problem of working women is full employment but this can only be attained if there is full employment for all workers, men as well as women. Full employment means mass production with mass purchasing power to absorb the goods and services made available by mass production. Further, we learned that, due to advances in technology, increase in average annual wages can be attained without raising the prices of consumers' goods.

If there if sull employment, then there will not be the problem of finding jobs for unemployed women but there will be plenty of others. Problems which will call for concerted action. Some of these may be briefly mentioned.

1. Problems of discrimination against women in getting and holding certain types of jobs, in wage rates, in opportunities for training, and in advancement. Certain groups, such as married women and Negro women, will feel the weight of discrimination more heavily than others. In the case of Negro women, discrimination in shop and office is merely an extension of community race prejudice to a particular situation. Here is one area where every member of every woman's organization can help by striving against race prejudice.

2. Problems of Retraining. Many workers who have only the skill acquired on a war job will need retraining for another type of work; some war workers will need refresher courses before returning to former type of work. Retraining raises three questions which must be answered specifically for each community: In what businesses or services are there job opportunities for women? For what particular jobs do they need training? What agency or agencies in the community are equipped to undertake training? To find the answers to these questions is a significant task for any group of women to undertake for their community.

3. Problems of Counselling and Placement. Job counselling for displaced women war workers and their placement are functions of the United States Employment Service. By visiting local public employment offices and talking with applicants, women's organizations can determine how effectively these functions are being carried out. U.S.E.S. can perform these functions satisfactorily if the community demands it.

4. Problems of Conditions and Standards of Work. Of the many aspects of these problems, wages and practices of personnel departments have been emphasized in particular. New minimum wage boards need to be appointed in this State to bring minimum wage rates in service industries into line with wages in other types of work. In supporting efforts to get new wage boards appointed and in striving for better conditions of work in domestic service, especially, women's organizations have an important field of endeavor.

5. Problems of Community Services for Working Women. Since the evidence presented leaves no doubt that more mothers will have to work after the war than did before, it is of major social importance that their children be adequately provided for while the mother is at work. By seeing that day care centers for pre-school children, school lunches and after-school centers are provided for the children of working mothers, women's organizations can render a significant social service to their communities. The dissemination of information in regard to financial aid available to mothers and children under the Social Security Act is another task that has been suggested as appropriate for women's groups to undertake.

Discussion. Mrs. Fleming of the League of Women Voters suggested an exchange of legislative information and action to support legislation toward joint aims. Miss Corre mentioned our responsibility to educate the housewife-employers to decent standards for house-workers. Miss Aikin suggested one group in each community issue a community information sheet periodically as a service to workers at point of release. Information on retraining opportunities, expanding industries, improved housework standards, community facilities, and opportunities for counselling will be welcomed by the worker who wants to know where to go next. Personnel workers will be glad to distribute the information to the workers they must release.

Ohio

7-6-42 20,000 women are expected to be needed in war industries in Akron. A house to house canvass to find women who could work will be started July 13. (Cleveland Plain Dealer, June 28, 1942)

Ohio

A canvas began of Summet County, July 13 to find women available for war work. Also available living accommodations, and places where children of working mothers could be cared for. Cities include Akron and Barberton. (A. Beacon Journal, July 9, 1942.)

Ohio

7-27-42

With orders for hundreds of women for war jobs in Cincinnati, and an insufficient number of applicants, the employment office will remain open one evening a week to accept applicants. (Cincinnati Times-Star, July 20, 1942)

Ohio

8-18-42

A survey of 121 manufacturing plants in Dayton showed 11,448 women employed. They expect to employ 5,600 more by January 1st. (Dayton News, August 6, 1942)

Ohio - Registration.

9-24-42

Of the 9,313 women who expressed willingness to work in an Akron house-to-house survey, only 35 percent or 3,260 will actually be available now. Originally 42,054 women were questioned. Probably not all the 3,260 will be available for factory work, since of the original 9,313, 5,508 designated factory work, 2,315 clerical, 990 sales, 301 service and 1,196 other.

Of 1,917 mothers answering questions on child care, 936 would prefer private arrangements with friends or relatives, 283 would pay a day nursery, 394 would pay private part-time care, 232 would pay private full-time care, and 72 other arrangements. (Akron Journal, September 15, 1942.)

Ohio

A house to house canvass in Akron found 11,000 women willing to work. At least 3,000 of them have been placed as a result. Nearly all were new workers. (C. Press, Oct. 20, 1942)

In Toledo, of 11,000 in active file, 6,000 are women. (T. Blade, Oct. 20, 1942)

Cleveland factories must train 50,000 women in 1943. (C. Press, Oct. 23, 1942)

Ohio

11-23-42

Registration by W.M.C. of all women 18 and older in Dayton and County will begin Nov. 16. (D. Journal, Nov. 7, 1942.)

Ohio

12-18-42

3,500 more women will be needed to replace men in Canton war industries. 7,000 are now employed. (C. Repository, Dec. 9, 1942.)

Ohio

The block-by-block setup for civilian defense in Cleveland will probably be used in an intensive drive to persuade 40,000 women to enter industry. (C. Plain Dealer, Jan. 3, 1943.)

2-6-43 **The Nation's first woman-power committee will be formed in Cleveland early in February. It will include housewives, professional women and those engaged in community efforts. (Chicago Sun, Jan. 30, 1943.)**

Ohio

4-17-43

901 identical war-product manufacturers reported that 15 percent of their workers were women in July 1942, 21 percent in January 1943. These currently employ 877,000, 189,000 of them women. These 189,000 women are concentrated in half-a-dozen industries: Aircraft and parts, 49,000; ordnance and accessories, 25,000; electrical machinery, 25,000; iron and steel and products, 20,000; non-electrical machinery, nearly 16,000; rubber products, 15,000. (The Compensator, Mar. 1943.)

Ohio - Cleveland Area

8-30-43

A total of 20,000 to 30,000 women are employed in industry in the Cleveland area. They fit well here because Cleveland produces a large volume of small articles and parts. In one plant, 1,000 out of 2,500 are women. They are 40 percent of labor force at a near-by ammunition plant. Several hundred are being sought for training as street-car conductors in Cleveland. When the local bomber plant is completed, it is expected that a few hundred key men will be imported and that most other help will be women recruited locally. (Com. Commerce, March 25, 1943.)

Ohio

4-13-43

From 7,000 to 9,000 women will be needed in Columbus industry in next 6 months. (C. Dispatch, Apr. 4, 1943.)

Ohio

4-17-43

400 women are needed in Springfield war industries this month. (S. News-Sun, Apr. 4, 1943.)

Ohio

4-24-43

A 4-day campaign has started to recruit 10,000 women for war work in the Northeastern section of Greater Cleveland, 60 war plants in the district need women workers and one needs 250 workers a week for the next 10 weeks. (C. Press, Apr. 14, 1943.)

Ohio

5-8-43

U.S.F.S. reports Ohio employers must recruit more than 252,000 new workers, 85 percent of them women by August. Only 34,616 women are now registered. (Columbus Citizen, Apr. 30, 1943.)

Ohio

5-15-43

U.S.E.S. in Akron has begun sending letters to the nearly 6,000 women who enrolled in the area last fall but were not placed. They were asked to apply again for war jobs. 7,500 more workers are needed, 3,500 of them at once. (A. Beacon Journal, May 5, 1943.)

Unless 1,500 unemployed Springfield women register for war work with U.S.E.S. by May 15, efforts of the Critical Area Advisory Committee to remove the city from "critical area No. 1" will be useless. (S. Sun, May 8, 1943.)

Ohio

5-24-43

There are openings now in Dayton for more than 1,200 women according to W.M.C. These include jobs in manufacturing, trade, and service. (D. News, May 16, 1943.)

Ohio

6-5-43

Since March 1 about 5,000 persons have been added to war plants in Cincinnati. 3,000 of them women. (C. Enquirer, May 25, 1943.)

Ohio

4-12-43

A house-to-house canvass for women war workers is planned in the Collingwood-East Cleveland Area. (Cleveland News, June 1, 1943.)

Ohio

6-19-43

It is estimated that Cleveland War Industries will need, at the most, 4,500 women a month this summer. (C. News, June 9, 1943)

Ohio

9-17-43

U.S.E.S. had an order for about 300 women to learn drill and punch press operation in a large East Side factory in Cleveland. Women comptometer and calculating machine operators are urgently needed. (C.. Plain Dealer, July 5, 1943.)

Ohio

10-25-43

A campaign is announced to obtain 5,500 women in Cincinnati for essential civilian occupations, as well as war work. (C. Enquirer, Oct. 14, 1943)

In Canton U.S.E.S. is to refer men to plants only for jobs men alone can do. Women will be sent out for all others. Gate hiring of men is banned. (Cleveland Plain Dealer, Oct. 17, 1943)

Ohio - Foundry

E. H. Bardes Range and Foundry Co. hired 4 women to train as coremakers. Their work was so satisfactory they are now training 12 more. (Highlights, Apprentice Training, Dec. 1, 1943) Confidential

Ohio - Aircraft

1-15-44

Of 400 workers laid off by Goodyear Aircraft Corp., Akron, most were women with a minimum of experience. (A. Beacon, Dec. 15, 1943)

Married Women - Ohio Aircraft

2-5-44

Thompson Aircraft Co., Euclid, are laying off 1,000 workers because of a cut in production. Married women whose husbands are employed will be dropped first regardless of seniority. Some lay offs were avoided by reducing hours from 48 to 41½. Cleveland has a mandatory 48-hour week, but W.M.C. is giving the firm two weeks to shift its schedule because they had no advance notice of the cutback. (Business Week, Jan. 29, 1944, p. 103)

Ohio

2-19-44

Director of W.M.C. in Cleveland area states that 3,500 more women are needed for war industries so a second recruiting drive will be started. (C. Plain Dealer, Feb. 3, 1944.)

Ohio - Bearings

2-26-44

The Cleveland Graphite Bronze Co., makers of bearings both before the war and now, expect to continue to make them after the war. While they expect their wartime staff to be reduced, they plan to continue to employ 1,500 more than before the war. (The Clevelander, February, 1944) In 1939 the company reported 1070 men and 467 women employed. (Ohio Directory)

Ohio-4

Ohio - Boat Building

2-26-44 Warren City Tank and Boiler Co., makers of landing barges, employ 300 women in machine shop, welding and inspection departments. They work 6½ hours a day the first month, then go on a 48-hour schedule. Many were trained under a short-term program last year. (Apprentice-Training Highlights, Feb. 16, 1944, Confidential)

Ohio - Bearings

3-4-44 Timken Roller Bearing Co. have a small new plant in Canton employing 96 women on three five-hour shifts. The only men employed are a few for supervision and for heavy work. They are trying a newly-designed assembly system that enables even a new crew to speed up assembly of bearing parts. (Cleveland Plain Dealer, Feb. 13, 1944)

Ohio - Bearings

4-1-44 Jack and Heintz Inc. are opening a new plant to make special bearings for their own use in aircraft instruments. The 700 workers will be almost entirely women, some who have never worked before. (Cleveland Plain Dealer, Mar. 17, 1944)

Ohio - Electric Goods

3-18-44 Save Electric Corp. Toledo, makers of incandescent lamps has 277 workers, 200 women. They have appointed a woman training supervisor in connection with a short-term program. She has many years of experience and can do at least 80 percent of the starting jobs. (Highlights, Apprentice Training, Feb. 23, 1944, Confidential)

Ohio

3-18-44 The Advisory Council of the Ohio Bureau of Unemployment Compensation considers 118,000 women in strictly war plants, the chief post-war problem. Nov. 1 there were 232,868 persons employed in aircraft plants, 93% of them in Columbus, Cleveland, Cincinnati, Akron and Dayton. One of every three persons employed in aircraft and ordnance plants is a woman. Other industries should have little difficulty in converting to peace production. (Columbus Citizen, Mar. 3, 1944)

Ohio

4-29-44

35,000 women are wanted for State war plants by July. (Cleveland Plain Dealer, April 11, 1944)

A roster of "reserved occupations" will soon be completed and in use by Dayton USES. Only women will be referred to these jobs, and employers will be asked to use only women on them. (D. Journal, April 8, 1944)

Hereafter, no employer in Youngstown, Warren, or Niles, may hire women engaged in essential occupations, without a referral from USES. Referrals of men have been controlled since Oct. 15, 1943. (Youngstown Vindicator, April 10, 1944)

Ohio - Hardware

5-13-44 The Cleveland Hardware and Forging Co. in cooperation with the Mine, Mill and Smelter Workers, C.I.O. has established an advancing worker program for training 8 women and 14 men as operators on power and drill presses, turret lathes and casting machines. (Highlights, Apprentice Training, Apr. 26, 1944, Confidential)

Ohio

5-4-44 A campaign to recruit 5,000 women to work in Toledo war plants began April 18. This will increase the percent of women from 29 to 33. (T. Blade, April 18, 1944)

-- Blueprints

5-20-44 The American Blueprint Co., Hamilton, O., is to train 36 women in groups of 12, for six weeks each, in an advancing worker program. (Highlights Apprentice Training, May 10, 1944, Confidential)

Ohio - Aircraft

7-15-44 A. J. Miller Co., Bellefontaine, employs more than 400 workers, 85 of them women. The company assembles gas tanks and aircraft bulkheads. (Apprentice-Training, July 5, 1944, Confidential)

Ohio

8-11-44 More than 100,000 women are now working in war industries in Greater Cleveland. (Cleveland Plain Dealer, July 27, 1944)

Ohio

11-18-44 WMC says that 2,00 women are needed at once in the Akron district. A campaign has been started to persuade them to take either full or part-time jobs as factory workers, bus and taxi drivers and workers in stores, laundries, hospitals, and restaurants. (Akron Beacon Journal, Oct. 28, 1944.)

Ohio

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Ohio

1-27-45 At least 700 women could be employed in Youngstown at a moment's notice, and 2,000 to 3,000 more could be quickly absorbed in war plants according to WMC regional director. Truscon Steel Co., has asked for 66 women a day, until they have 600. (Youngstown, Vindicator, January 2, 1945.)

Ohio

5-19-45 About 50,000 women are working in essential war industries and Federal agencies in the Cincinnati area according to Mrs. Lucille Rose, womanpower counsultant to WMC. They are 36.8 percent of total. (Cincinnati Times-Star, Feb. 9, 1945) In 1940, 81,281 women were employed in the Cincinnati Metropolitan District. Of these 20,150 were in manufacturing and 1,262 in Government. About 36,000 were in trade or personal service.

***Akron, Ohio

The Bureau of Unemployment Compensation reports that benefit checks are now (Date line January 7) being paid to 6,040 women and 751 men in Akron. A great majority of the women were not in the labor market before the war. They were trained for such jobs as building aircraft parts, now nonexistant. Total on factory payrolls is now 53,000, about 400 more than the banner year before the depression but more than 28,000 below wartime peak. (Chr. Sci. Mon., Jan. 7, 1946.)

Ohio

4-7-45 Armed with WMC questionnaires 100 volunteers started out Mar. 20 to determine the potential supply of woman labor in Cincinnati and Hamilton County. They plan to interview 5,000 women. (Cincinnati Enquirer, Mar. 21, 1945.)

Ohio - Tires

Women in a Cincinnati plant build tires completely up to the curing operation, tires it was once thought only men could build. Break-in time has been cut from months, to in some cases less than a week. A girl with five days' experience built a tire in five minutes. Job instruction helped, but even more was use of J I principles. (No explanation of how done) (TWI News Letter, Mar. 3, 1945)

Ohio - Cutbacks

6-16-45 There are enough jobs in the Youngstown area to take care of the thousands of men recently laid off because of cutbacks, but there is a surplus of women workers. Perhaps some of these could qualify for Pacific Coast jobs in repairing war ships. For the first time in many months U.S.E.S. is getting applications from women willing to do housework. (Editorial, Youngstown Vindicator, June 3, 1945)

- Rubber

The first major cutback on a military contract in Akron announced June 13th, involved reduced production for bullet-sealing fuel cells at B.F. Goodrich plants. The men affected will be provided with other jobs. It is indicated that after all possible transfers to other war work has been made there will be a surplus of 250 women.

800 workers were notified of release at a Ravenna ordnance center, June 13. WMC staff members were sent immediately to recruit these workers as there are 1500 unfilled priority jobs in the Akron area.

War requirements have expanded the rubber industry from 48,600 on July 1, 1941 to 68,128 as of the present time. WMC representatives said there will be jobs after the war for all native workers now employed. "We naturally expect that a large percentage of the migrant workers will return to their homes." (N.Y. Times, June 14, 1945)

Ohio

Jack and Heintz Inc., Cleveland, will eventually have to reduce their force of 8,600 "associates". Their plan is first to reduce hours from 60 night shift and 52½ day shift, to 48 and then 40. Next they would have mothers and married women with husbands resign. Men and women who "enlisted" for war work should go back voluntarily to their old jobs and professions. They are now considered temporary workers. Layoffs may be postponed by new contracts received just after the first announcement suggesting who should resign. (Business Week, June 9, 1945, p. 84)

Ohio - Electric Gadgets

Jack and Heintz, Inc., Cleveland, expect to make ball and roller-type bearings, electric motors, refrigerator compressors, electronic gaging devices, and the Jakco Gasoline engine. Now employing 1,400 "associates," president Jack predicts re-employment for most of the 6,000 workers dismissed at the end of the war, and for additional thousands. In 1946 Jack says the company will share profits equally with employees. (Business Week, Jan. 5, 1946, p. 54.)

Ohio-7

***Ohio - Women Covered by Unemployment Compensation Law

September 15, 1945 there were over half a million women actually employed in industries covered by the Ohio unemployment compensation law, 32 percent of all so employed. Total employment is estimated to have increased 11 percent by April 15, 1946, but no estimate was made of the change in the employment of women. The employment of women by industry in September 1945 was as follows:;

5-13-46

	Women employed		
	Number	Percent distribution	Percent of total
All industries	517,664	100.0	31.6
Manufacturing	253,601	49.0	26.2
Transportation and utilities	29,294	5.7	30.5
Wholesale and retail trade	159,298	30.7	46.8
Finance, insurance, and real estate	25,225	4.9	48.7
Service	40,926	9.1	45.6
All other	3,320	.6	4.4

(Ohio Bureau of Unemployment Compensation. Compensator, First Quarter, 1946, p. 11.)

Ohio - Women in Steel

11-10-47

Steel mills in Youngstown, Ohio are "out 'beating the bushes' in other parts of Ohio in search for every available man who would like to work in a steel mill. They're swamped with the biggest peacetime volume of orders in their history .....

"One plant, Commercial Shearing and Stamping Company, recently hired 20 wartime trained women welders when it was unable to find enough men. Some of the steel plants also are considering re-employing women, even despite the many problems involved." (Christian Science Monitor, Oct. 31, 1947.)

Ohio - Employment of Women

12-19-49 Manufacturers Directory, 1947, issued by the Ohio Department of Industrial Relations. Gives employment by sex in individual plants, classified (1) by industry, (2) by county. (Labor Library, Number HD 9723-04, 1947 - Reference Room.)

Ohio -8

Ohio, Employment of Women

7-7-48

On November 15, 1947, there were 312,014 women employed by 2,345 employers reporting to the Ohio Bureau of Unemployment Compensation. More than half of these women were in manufacturing establishments. The following table shows the position of women in leading industries. For approximate comparison, 1940 Census figures are also shown. While these two sets of figures are not strictly comparable, it is perhaps significant that the number of women was considerably larger in 1947 in all manufacturing combined and in several of the individual industries. Employed persons reported by industry in the 1940 Census include employers and all other persons, regardless of earnings, and regardless of number of persons in reporting establishments; whereas the 1947 figures are based on the number of employees reported by 2,345 selected employers.

	Employed Women				
	November 1947				1940
	Number	Percent distribution		Percent of total	Number
All reporting industries	312,014	100.0		25.1	--
Manufacturing	186,230	59.7	100.0	20.3	131,095
Electrical machinery	33,232	-	17.8	36.7	13,533
Machinery, except electrical	25,657	-	13.8	14.4	7,362
Rubber products	19,133	-	10.3	21.6	9,567
Fabricated metal products	14,204	-	7.6	19.7	9,373
Apparel	12,658	-	6.8	75.4	16,061
Stone, clay, and glass products	10,421	-	5.6	20.8	9,256
Primary metal industries	9,281	-	5.0	5.6	4,588
Transportation equipment	8,493	-	4.6	10.6	6,385
Paper and allied products	8,080	-	4.3	32.5	5,563
Printing and publishing	7,889	-	4.2	40.2	8,654
Leather and products	7,681	-	4.1	54.7	7,823
Food and kindred products	7,448	-	4.0	26.7	8,999
Chemical and allied products	5,607	-	3.0	19.3	4,606
All other 1/	16,446	-	8.8	26.8	19,325
Nonmanufacturing	125,784	40.3	100.0	39.1	2/
Trade	58,218	-	46.3	55.2	
Service 3/	33,063	-	26.3	61.1	
Finance, insurance, and real estate	11,766	-	9.4	57.9	
Transportation & public utilities	11,171	-	8.9	15.4	
Government	10,898	-	8.7	24.7	
Mining and construction	668	-	.5	2.6	

1/ Miscellaneous manufacturing and specific industries employing fewer than 5,000 women in 1947.
2/ Not comparable.
3/ Includes 1 agricultural service establishment.

(Ohio. Bureau of Unemployment Compensation. Reports and Analysis. Table RS 270. A-1 1947; and 16th Census of the U. S., 1940. Population, Vol. III, Part 4, Table 17, p. 760.)

Demand & Supply - Women - Illinois - 1

Illinois

7-11-42

State hospitals for women have been opened for treatment of women with venereal diseases, and training schools made available so they can get jobs in war production industries, according to the director of the State Public Welfare Department. (Chicago News, July 28, 1942)

Illinois - College Women in War Work.

Rockford College is inaugurating a combination program under which students go to classes three days a week, and work at the Woodward Governor Company plant on important war work three days a week. They will be paid a minimum of 60 cents an hour. (Chicago Tribune, September 9, 1942.)

Illinois

10-20-42

The Chicago area needs from 100,000 to 150,000 more women workers. (Chicago News, October 6, 1942)

Illinois

3-30-43

About 300,000 more women are employed now in Illinois than in 1940 and 200,000 more are needed, according to the State Director of Labor. (Springfield Register, March 18, 1943.)

Illinois

4-3-43

127,000 women, not now in labor force, must go to work in Chicago to prevent a labor shortage according to W.M.C. (C. Herald & Am., March 26, '43.

Illinois

4-13-43

In 1943, the Chicago area needs 195,200 men and 112,500 women. The supply indicates a shortage of 93,200 men and surplus of 93,400 women. Women must be hired for every job possible and men now working shifted from all jobs women could fill. (Statement of W.M.C. Director) (Chicago Times, Apr. 2.)

Illinois

5-24-43

More than 12,000 jobs in 6 large new Chicago war plants cannot be filled because of W.M.C. job-freezing order, according to W.M.C. regional director. Plants have openings for 9,262 men and 2,830 women, and number of workers needed will increase to 20,000 in 3 months. (N.Y. Herald Tribune, May 14, 1943.)

Illinois - Increased Employment

6-5-43

From March 1940 to March 1943 increase in employment was as follows:

	Men	Women
All reporting industries	29.1	73.1
Manufacturing	33.8	81.0
Metal and machinery	47.8	169.9

(The Illinois Labor Bulletin, April 30, 1943.)

Illinois

7-10-43

A recent survey by the women's executive committee of the Office of Public Instruction, showed that 151 establishments in the Chicago area employ 174,845 persons, 73,173 of them women. They need 15,697 more women. (C. Sun, July 3, 1943.)

Illinois - Personnel and Training

4-15-44 **Chefford Master Mfg. Co., Fairfield, was faced with a serious problem of replacing drafted men. Officials were advised to employ a woman counselor, train a woman as job instructor and extend employment of women. (Highlights, Apprentice Training, Apr. 5, 1944, Confidential)** Screw mach. prod., stamps, ball bearings. Piston pins. (Chas. Register.)

Illinois - Aluminum

Women form 30 percent of all workers at the Chicago works of the Aluminum Co. of America. One is in the rolling mill department operating one of the massive hot mills which irons out aluminum ingots in the sheet-rolling process. (C. Tribune, Nov. 25, 1943)

Steel

South works plant of Carnegie-Illinois Steel has lost almost 18 percent of their workers in 6 months. They are asking for a study and recommendations on possible hiring and training of women. (Highlights, Apprentice Training, Dec. 1, 1943, Confidential)

Radar

There is a critical shortage of workers to make radar equipment, and 42 Chicago producing companies have organized a committee to recruit women. It is hoped to enlist 11,000 in December and 9,000 in January. Experience is not required. (Chicago Sun, Dec. 17, 1943)

Illinois - Aircraft

The country's largest war plant, a series of buildings sprawling over 500 acres of land on the South Side of Chicago was ready today to turn out engines for Army bombers. It will employ more than 25,000 when it begins mass production. It has 14 cafeterias. It was built by Dodge Division of Chrysler Corp. (N.Y.Tomes, Dec. 25, 1943.)

Illinois - Plane Engines

The Chrysler Corp. has begun a job-training system that will prepare men and women who have never worked in a war factory - "housewives, salesmen" and so on - in time for the beginning of production. It is considered impossible to get skilled machine operators in sufficient numbers. (N. Y. Times, Jan. 20, 1944.)

Illinois-Forge Shop

Wyman-Gordon Co., Ingalls-Shepard Div., (automobile and aircraft motor forging) Harvey, has set up short-term training for 70 women in various operations: saw operators, janitors, baggers, water treaters, crane operators, control inspectors and layout and index inspectors in the forge inspection department, timekeepers, storekeepers, clerical work. (Highlights, Apprentice-Training, Jan. 5, 1944, Confidential)

Illinois - Part Time

2-19-44

An apron shift has been started at Zenith Radio Corp., Chicago. It runs from 9:15 a.m., after children are off to school to 1:15 p.m. It is quite popular. (N.Y. Times, Feb. 3, 1944.)

Illinois - Tractors

3-4-44

Caterpillar Tractor Co., Peoria, is in urgent need of 700 men and 150 women. "We understand that persons hired now are being told that, so far as possible, they will remain on the job after the war. Expansion plans by the company make this pledge possible." (Editorial, Peoria Journal-Trans., Feb. 9, 1944)

Illinois - Aluminum

4-15-44 The Aluminum Co. of Am., with more than 2,000 men and women at its plant near Chicago, needs 250 more. The plant makes sheets of aluminum plane skin. Lunch is eaten on the job, with relief provided, so total time spent in the plant is 8 hours. (C. Tribune, May 18, 1944)

Illinois

8-11-44

More than 400 women workers have been recruited in Joliet. Special emphasis is being placed on hiring of women not now employed. A similar campaign is contemplated in the Rockford area. (Joliet Herald News, July 27, 1944)

Illinois - Coal Mines

Two women are employed as weighmen in coal mines at Gillespie. With installation of modern machinery, officials believe women can fill these positions efficiently. (Muscatine Iowa Journal, July 20, 1944)

Illinois

An estimate has been made of employment of men and women in Illinois, August 1944, which is a rough approximation of groups covered by the Social Security program based on the sample of establishments reporting monthly to the Illinois Department of Labor. The report on women is as following:

	Number	Percent of Total
Civilian Labor Force	1,268,000	36.6
Employed	1,244,000	36.4
Non-agriculture	1,159,000	41.0
Manufacturing	409,000	33.0
Armed forces	10,000	1.4

(The Illinois Labor Bulletin, Sept. 30, 1944.)

Illinois Aircraft Engines

The Buick motor division in Melrose Park makes aviation engines, began laying off 4,000 of its estimated 11,000 workers April 18, because of cancellation orders. All B-24 production will stop by July, Army Air Forces has said. The Buick plant in Flint, Michigan will also be affected (ChicagoSun, April 19, 1945). In December 1944, BLS estimated women to be 31 percent of wage earners in aircraft engine plants.

Illinois

10-25-44

6,000 of the 20,000 more war workers needed by 150 Chicago area plants must be women according to WMC. A drive was begun October 15 to recruit men and women. (Chicago Tribune, October 14, 1944.)

Illinois - Oil Refining

In the Alton area union permission was secured for introduction of women into a refinery. Preference was given to relatives of employees now in service. Among the jobs women are now doing are: loading and unloading trucks of lighter material (limited to lifts of 35 pounds); grounds-keeping jobs; stock clerks; operators in drum storage department, running power stitching machines used to assemble heavy cardboard drums or rolling completed drums to filling machine; rivet passers. Women are given same privileges, promotion rights and wages of men in like positions. (Manpower Review, October 1944, p. 14.)

Illinois

Birtman Electric Co., Rock Island wants 70 women for inspection, assembly or light machine work on generator controls. The plant employs 360, of whom 165 are women. (Rock Island Argus, January 12, 1945)

Illinois - Demand

4-30-45 WMC director says that 400 priority plants in the Chicago Area need 22,000 more workers, 7,000 of them women. Plants listed as wanting the most women are making aircraft and parts, radar and fuzes or cans. (Chicago Times, June 18, 1945)

- Layoffs

425 persons were laid off at the Studebaker plant, Chicago Area, May 11 and 12. 381 of them were interviewed by U.S.E.S. interviewers. 95 women were interviewed but only 7 referred to other jobs at that time. Of 88 women not referred, there were no suitable openings for 30, 15 were not interested in jobs at that time, and 43 were evidently not interested in jobs available because of lower wages. Of 286 men interviewed on these two dates, 115 were referred to jobs. Others may have returned to U.S.E.S. later. (Memo from Miss Ziegler, June 19, 1945)

Illinois

In the period from Aug. 15 to Sept. 8 women filed 54.8 percent of the jobless pay claims in Illinois, while they were 47.3 percent of the workers laid off during that time, according to State Department of Labor reports. In Chicago alone 46,997 women, almost 100 percent of those laid off, filed claims. About 35.3 percent of all jobs available in Chicago during these three weeks, were for women (Ill. State Fed. of Labor Wkly. New Letter, Oct. 13, 1945.)

***Illinois - Little Egypt

The postwar employment problem of Southern Illinois is being studied by a Community Council formed in Herrin, the center of population. Before the war there were about 23,000 unemployed in the area. One of the plans is to reconvert the Illinois Ordnance Plant to peacetime manufacturing units that will provide a minimum of 3,000 jobs. Some progress has been made.

The Independent Casing Co. has located a plant in Herrin and expects to employ 100 women.

The Borg-Warner Co. is building a plant that will employ 1,500 men and women.

The Industrial Services, Inc., has placed a sub-assembly plant in West Frankfort and expects to employ 75 women at peak. (U. S. Department of Labor, U. S. Employment Service, Employment Service Review, December 1945, p. 10.)

Illinois - Unemployment Compensation

Almost three-fourths of the workers disqualified from receiving unemployment compensation were women, according to U.S.E.S.

This high percent of disqualified women results from the fact that many received high wages in the machinists' trade during the war and do not want to go back to lower paid office jobs. Under present rules, skilled workers who cannot get work at high pay levels in 10 weeks must accept lower paid work. Semiskilled workers are allowed 8 weeks and unskilled workers 6 weeks in which to find jobs at their former rate. After this they must take other jobs or lose their benefits. (Chicago Tribune, Jan. 14, 1946.)

*** **Illinois Telephone**

Production of telephones for civilian use was to start December 17 by the Western Electric Co. at the former Studebaker Aviation engine plant in Chicago which Western Electric Co. has leased. More than 5,000 persons will be employed here, bringing the total Chicago pay roll to 30,000 - 6,000 more than before the war. (Chicago Tribune, Dec. 17, 1945.)

Illinois

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***Illinois - Job Openings

4-8-46 A recent survey by the Illinois State Chamber of Commerce indicates that there are 172 jobs available for each 100 persons unemployed.

In Chicago job opportunities for women increased from 17,136 in December 1945 to 46,160 in March 1946. Jobs offered for men decreased from 66,402 in December to 40,408 in March.

Most of the jobs pay from 60 to 89 cents an hour, regardless of location or whether for men or women. The second highest number of jobs offered paid 90 cents or more an hour, the smallest number less than 60 cents. (Chicago Tribune, March 25, 1946.)

Chicago Area

1-19-48 "Job opportunities [in November-December 1947] for women will be numerous in electrical machinery, food and apparel as well as in the temporary seasonal openings."
(U.S.E.S. Labor Market Information, Industry Series, Current Supplements, November 1947, and Area Series, Current Supplements, December 1947.)

Illinois - Employment Opportunities

5 12-48

New factories opened since the war in "Egypt," the 16 counties at the southern tip of Illinois, include the following:

"Smoler Bros.- big Chicago manufacturer of low- and medium-priced women's dresses--now has 325 women at work in its $190,000 factory, built by the city on a 15-year lease arrangement. ... Smoler uses advanced assembly line techniques and the company expects capacity production to reach a level of 20,000 to 25,000 dresses a week. Maximum employment is slated to be 500 women--the company's goal within the next six months.

"At the Crab Orchard war plant, the biggest tenant is Sangamo Electric Co. Sangamo is producing condensers and currently employs about 600 workers (75 percent are women). This month the firm will add an electrolytic condenser division; it will require another 400 employees with a few months.

Another tenant in the former war plant is:

"Radionics Products Co., maker of radio parts. It has 100 workers (mostly women)." (Business Week, Mar. 6, 1948, pp. 24, 25.)

Illinois - Manufacturing

9/20/48

In July 1948, 1,185 leading manufacturing firms reported employment of more than 800,000 persons, one-fourth of them women. Anticipated employment in November 1948 was also reported and indicated a net increase of more than 10,000 women. Women's employment in leading industries and anticipated increase by November 1948 was as follows:

	Employment of Women			
	Number, July 1948	Percent distribution	Percent of all persons	Anticipated net increase by November 1948
All manufacturing	202,816	100.0	24.9	10,274
Electrical machinery	42,399	20.9	39.4	1,623
Food and allied products	27,940	13.8	29.4	3,081
Machinery, except electrical	24,091	11.9	13.9	666
Fabricated metal products	17,719	8.7	23.1	683
Apparel	16,053	7.9	68.7	1,283
Printing, etc.	11,235	5.5	31.8	1/ 223
Leather	10,403	5.1	49.2	524
Profl. scientific and cont. instruments	7,985	3.9	44.6	585
Transportation equipment	6,000	3.0	14.1	157
Primary metal products	5,578	2.8	6.2	310
Chemicals, etc.	5,459	2.7	22.7	133
All other 2/	27,954	13.8	26.0	1,442

1/ A decrease.
2/ Miscellaneous and industries reporting fewer than 5,000 women.

"Despite the upward trend in both manufacturing and non-manufacturing employment, the number of unemployed in the area [Chicago-Calumet] rose from 85,000 (40,000 women) in mid-May to 90,000 (42,000 women) in mid-July. This simultaneous increase in both employment and unemployment resulted from the heavy expansion of the labor force that occurred when the school term ended in June."

[Cont'd next page]

Among the occupations having the largest number of unemployed were the following:

Bookkeepers (male & female) - Most are unable to type
Cashiers (male & female)
Clerks, General Office (male & female) - Many live in suburban sections; few can type
Clerks, mail, accounting, stock, shipping, etc. (male & female)- Many are inexperienced; others are over 40 years of age
Clerk-Typists (male & female) - Large proportion of applicants is either nonwhite or over 40 years of age
Drill Press Operators (male & female)
Managers (male & female)
Radio Assemblers (female) - Many are over 45 and live in suburbs
Salespersons (male & female) - Many seeking work in specialized fields
Sewing Machine Operators (female) - Many are nonwhite

Some occupations in heavy demand were:

	Wage rate
Chassis Assemblers (female)	$ .95 - $1.01 per hour
Field Directors & Hostesses (female) (chiefly for overseas jobs)	57.00 - 80.00 " week
File Clerks (female)	.85 - 1.00 " hour
Stenographers (male, female)	40.00 - 65.00 " week
Typists (male, female)	35.00 - 55.00 " week

(Illinois Department of Labor; Labor Market Trends, August 1948.)

Illinois Employment Opportunities

2-6-50 In 1947 the Illinois Legislature directed that the Illinois Interracial Commission make a study of employment opportunities in the State. Among the findings were the following:

"The returns from 1,601 cooperating companies show that 50.9 percent use their management prerogative of determining hiring practices in a manner that denies equal access to opportunities of employment on the basis of ability and training and skills and accentuates rejection of qualified workers on the basis of race, creed or descent.

"These discriminatory policies of racial, creedal, and descent restrictions operate at all levels of occupational skills and so serve to restrict training and merited advancement of qualified workers belonging to non-white and other restricted groups.

"These discriminatory practices blocking free access to employment opportunities for non-whites and other restricted groups throw many workers and families back upon unemployment compensation or public relief processes.

"The Chicago Relief Administration, as of December 1, 1948, was carrying about 8,000 Negro Families on relief budgets, despite the fact that there was a person in each family for whom work opportunities were being sought and could not be found on account of discriminatory hiring policies in the Chicago labor market." (Special Report on Employment Opportunities in Illinois, Prepared by the Illinois Interracial Commission, 1948, pp. 5, 64.)

Illinois-6

Illinois Unemployment Problems

1-31-49 "A recent survey of characteristics of claimants for unemployment compensation and specifications of job orders filed with the Illinois Employment Service summarizes the current situation and illustrates some of the problems of matching claimants to job openings.

* * * * * * *

"The number of women claimants has increased from 24,300 one year ago to 26,750 today, or by 2,450. Women comprise more than half of the claimants for State Unemployment Compensation despite the fact that women are estimated to be less than a third of the Illinois labor force; in Chicago, women were about 58 percent of the claimants compared with 36 percent of the estimated labor force.

* * * * * * *

"Of white males, 55 percent had reported 5 or more weeks of unemployment, as compared with 64 percent of the Negro males. Over 60 percent of all white women claimants and 66 percent of Negro women claimants had been unemployed for 5 or more weeks in their current spell.

"Among those who had been claimants for 20 weeks or more:

45 percent of the men were over 55 years of age
60 percent of the white men were over 55 years of age
36 percent of the women were over 45 years of age
47 percent of the white women were over 45 years of age

* * * * * * *

"Two-thirds of the openings were for men, but more than half of the claimants were women.

* * * * * * *

"Slightly over half of the service claimants were male, but only one-third of the openings were for male workers. There were 3 service worker claimants over 45 for each job opening. There were over 400 more female claimants than job openings.

* * * * * * *

"There were 350 more male and 2,000 more female claimants than job openings in the semi-skilled occupations. ...

"There is a great demand for unskilled male workers and a great surplus of women workers. Considerably more than half the claimants in unskilled occupations were women workers and only 17 percent of the openings were for women." (The Illinois Labor Bulletin, January 1949, pp. 6, 7, 11.)

Illinois. Proposed Equal Pay Law

3-14-49 "An equal pay bill, designed to supplant the one enacted during the 1943 session of the Illinois legislature, which has not been too effective, has been introduced in the Illinois House by Representative Lottie Holman O'Neill and thirteen other State Representatives. The new proposal, H. B. No. 222, provides that no employer shall discriminate in any way in the payment of wages as between the sexes, neither shall he employ any women in any occupation at a salary or wage rate less than the rates paid to men for work of comparable character or work on comparable operations. The enforcement of the Act would be in the Illinois Department of Labor. It is before the House Committee on Industry and Labor Relations." (Illinois State Federation of Labor, Weekly News Letter, Mar. 5, 1949.)

Illinois-9

Illinois - Women's Employment

11-14-49 In September 1949 there were 340,211 women employed in 1,222 manufacturing establishments and 595 nonmanufacturing establishments reporting to the Illinois Division of Unemployment Compensation. Details as follows:

	Employed Women			
	Number	Percent of all employed	Percent distribution	
All industries	340,211	30.9	100.0	
Manufacturing	179,354	25.0	52.7	100.0
Electrical machinery	35,524	39.9		19.8
Food and kindred products	27,544	28.7		15.4
Machinery (except electrical)	18,078	13.0		10.1
Apparel	15,742	70.1		8.8
Fabricated metal products	15,397	22.5		8.6
Leather	10,463	52.2		5.8
Printing, etc.	9,687	30.2		5.4
Prof., Sci. & Cont. instruments	6,642	42.9		3.7
Chemicals, etc.	5,740	23.0		3.2
Stone, clay and glass	5,026	26.0		2.8
Other and industry not reported	29,507	15.5		16.5
Nonmanufacturing	160,857	41.8	47.3	100.0
Retail general merchandise	53,532	70.3		33.3
Comm. telephone, telegraph and related services	28,954	65.6		18.0
Other retail trade	15,920	40.6		9.9
Insurance carriers	9,306	64.9		5.8
Miscellaneous services	9,042	48.1		5.6
Health services	8,959	54.0		5.6
Banks and trust companies	6,269	50.3		3.9
Hotels and other lodging places	5,891	48.0		3.7
Wholesale trade	5,632	27.6		3.5
Other	17,352	13.3		10.8

(Illinois Department of Labor, Labor Market Trends, October 1949, pp. 9, 10.)

These figures do not represent total employment. As late as July 1, 1945, workers in establishments with fewer than 6 employees were not covered by unemployment insurance law, and neither were agricultural workers or domestic servants. (Illinois Department of Labor, The Unemployment Compensation Act, 1945, pp. 4,7.) Preliminary reports for the Census of Manufactures, 1947, show nearly 16,000 establishments reported in Illinois.

1/28/46 Pigeon (b)

Miss Frieda Miller, Director

Martha Ziegler

U.S.E.S. Labor Market Letters, Illinois

January 22, 1946

Attention Mrs. Nason, Miss Williams, and
Miss Pidgeon

Yesterday I received some additional copies of the December, 1945 issues of Labor Market Trends in various Illinois areas. I found that I had some duplicate copies of the material for some areas and so am forwarding the extra copies to the Bureau. Possibly you have already received copies of some of this material from me. I am also sending you the statewide summary, which may be of some interest, and the material for the East St. Louis area.

When I was in Wisconsin two weeks ago I inquired whether another issue of the Wisconsin labor market letters was available yet and was told that probably no more reports would be available for some weeks. When I was in Fort Wayne last week I was told that no new Indiana reports have been issued. However I shall inquire again in Indianapolis and may be able to pick up an extra set of the reports issued by Indiana a few months ago.

I shall try to get extra sets of these reports as I visit the various states and also make inquiries about mailing lists. Confidentially the situation at the moment seems to be this. The regional office of U.S.E.S. prefers that persons in other federal agenices get material through it but does not have many copies of the new labor market letters. However I think that the various state offices are also ready to furnish copies, but I hate to ask to be put on all of the various mailing lists. However, since these reports seem to be coming out rather infrequently I am hoping to get additional copies of a good many of the reports through personal calls at U.S.E.S. offices in the various states.

I believe I reported previously that Minnesota is apparently not issuing the same kind of reports, -at least not on a state-wide basis. Any reports for the Twin Cities and for the Duluth area are supposed to be sent to me.

Miss Frieda Miller, Director

December 21, 1945

Martha J. Ziegler

Employment Service Labor Market
Letters

Attention Mrs. Nason, Miss Williams

Recently I wrote to the Bureau concerning a new type of Labor Market Letter which is being issued by the Indiana Employment Service. Since then I have discovered that Illinois and Wisconsin have started a similar series of letters. According to Miss Atwood of the Chicago Regional Office of USES, probably most of the states have started issuing letters of this type on a monthly basis.

However, from what Miss Atwood has told me, I do not know how successful you might be in obtaining copies of these letters, if you wish to receive all of them. Miss Atwood said that only one set of the letters for this region is being forwarded each month to the Washington office of USES. She feels certain that the letters are available in the USES office and could be read there.

When I was in Racine this week I was given a complete copy of the first State Labor Market letter issued for Wisconsin. As is true of the Indiana reports, there is a general state summary and also there are summaries for a number of labor Market areas. Copies of this report are being sent to a large number of employers throughout the state.

Since this report may not be readily available in Washington, I thought you might be interested in some rather detailed excerpts from it.

The Labor Market letter, United States Employment Service, is dated December, 1945. This letter is Volume One, Number One. The State summary and practically each individual area report state that material in the letter may be published provided the source is credited to the USES. The letter for Green Bay does not have this particular sentence about publication on it, but since all the others do, I presume that the omission was an over-sight.

The State Summary reports that as of July 15, 1945, 436 selected establishments in Wisconsin reported an employment of 328,900 employees. Of this number 230,400 were men and 98,500 were women. A majority of these establishments were in manufacturing and were producing war equipment and supplies. As of November 15,1945 these same establishments employed 287,500 of which 76,800 were women. In reviewing the employment trend during the four month period from July 15th to November 15, 1945 it was found that the lowest employment was reported on September 15, 1945 when total employment in these firms was 283,900.

In general the individual reports for different areas follow a similar pattern. Most report decreasing employment of women, lack of well paying job

openings in manufacturing for women, scarcity of jobs for older men and women, etc.

LaCrosse - However, the report for the LaCrosse Labor Market area does not follow the usual pattern. In fact I am curious about the situation there and further investigation might be profitable. The report states that employment has increased sharply during November and the increase would have been greater but for shortage of material. Current employment, 8314, in eleven reporting firms now exceeds the 1945 peak by almost 200 and by January 15, 1946 is expected to pass the all time high war peak of 9239. The January 1946 female employment with these eleven firms is expected to exceed the war peak, 3800 by 100. The report emphasizes that the possibility of attaining this employment goal depends upon the availability of steel and cotton material and the progress made in the construction and automobile industries. According to the report "the reluctance of women to accept existing job openings and the similar type expected to be open may hold up recruitment, but it is anticipated that employers will utilize men even though some of the jobs are suited to women." Over 36% of the total workers in ten major manufacturing establishments are women. The bulk of the 760 openings on file in the local employment office are for women factory laborers and restaurant, institutional, domestic and clerical workers. The report states that employers are willing to hire inexperienced women for on the job training.

I called the regional office of USES to inquire a little more about the LaCrosse situation. The most recent Demand Supply Supplement has not been received yet in the regional office, though it is due in a few days. Miss Atwood said that LaCrosse, as compared to major industrial areas has a small amount of industrial employment. Labor was always scarce there during the war. However, the plants doing war work there were the same plants which normally operated in the community. Furthermore a number of the plants normally manufacture goods for which there is now a good deal of demand. The Allis-Chalmers Company has an agricultural machinery plant in LaCrosse. Also there is the Electrical Auto-Light Company which makes various types of equipment for automobiles. Also there is a plant which makes rubber foot wear and there is another plant which makes heating, cooling and air-conditioning equipment.

Eau-Claire - At the time of this report the local employment office had forty unfilled jobs listed for women. These

were primarily in institutional establishments or for domestic service. This report mentions the possible effect night work laws have on women's employment. The paragraph on this subject is as follows:

"The percentage of women employed by the major establishments in the area may be affected during the two month and four month forecast periods. During the war restrictions on night work were relaxed by the industrial commission of Wisconsin. It is expected that permission to employ women at night will eventually be discontinued and that the readjustments in the work force will require fewer women and more men. These firms are currently formulating plants to provide a solution and results should be available shortly." I believe this is the only area report which specifically mentions this problem.

Appleton-Neenah-Menasha - There is said to be a demand for workers in this area and an upward swing in employment has been noted since October 15, 1945. However between October 15th and November 15th the employment of women declined by 175. About eighty women will be needed in the knitting, glove and paper industries in the next two months. Generally women who have been employed in "men's jobs are being gradually eliminated, and the jobs they held are being filled by returning veterans." The report claims that despite the fact women workers are being replaced, the number of women applying for jobs has not increased.

Wausau - Total employment in fifteen major firms declined about 200 workers, practically all women during the two months period ending November 15, 1945. Most of the decline was due to lay-offs caused by material shortages in firms manufacturing electrical equipment and rubber products. Employment in the paper making industry increased about 125, all men.

Many of the unemployed women are in the older age groups who were recruited during the war and have now been replaced by younger women or men. There is some demand apparently for "active young women" for various jobs in rubber products and shoe manufacturing.

Oshkosh - There has been some gain in employment recently and some additional increase is forecast. However, the employment of women declined slightly in November and evidently there is little current demand for women. A few women are needed for factory work and in "the less remunerative clerical and sales positions." There are a number of older women also avail-

able but they are interested in factory employment which is now virtually closed to them because of age restrictions in the hiring specifications.

Sheboygan - In this area too there seems to be little demand for additional women workers. However, there are said to be some openings for women for power-sewing, spinning and knitting machine work. Experienced stenographers are also in demand. (This same statement concerning the need for stenographers is mentioned in a number of the area reports).

Manitowoc - Despite a slight increase in the total employment of twenty reporting establishments in the two month period ending November 15, 1945 the employment of women dropped sharply because of employers preference for available men. Further declines effecting both men and women are expected by January 15, 1946 in ship-building and novelty decoration activities. However increases are expected to occur in firms engaged in aluminum veneer, milk products, foundry, machine shop activities. Current job openings on file in the local USES office list 312 jobs of which about 50% are for women. The majority of the jobs carry lower wage scales than the ship-building industry. Many orders carry age restrictions. There are about 880 applicants in the files of the USES office of which 210 are women. About 40% of the applicants are 45 years of age or older and are unsuitable for many job opportunities because of employer age restrictions.

Green Bay - The last paragraph of this report summarizes the local situation with respect to women's employment: "One development of interest during the month was the persistent decline of women workers in the reporting establishments and the prediction based upon employers reports that this trend may be expected to continue at least through January. The feeling that the employment of women in jobs held by men prior to the war was a temporary measure is quite general as is the intention of employers to replace women with men in the majority of such jobs. In some instances, this replacement is in accordance with Union agreements. In others it is management's policy or is caused by the need to find jobs for all former employees who have been discharged by the armed forces."

Apparently the bulk of unfilled job openings for women in the area are in domestic service.

Beloit-Janesville. In Janesville there seems to be more demand for women workers since the Employment Service reported job openings for 250 men and 200 women. In addition to the usual jobs for women in trade and service establishments, there are job orders for women ~~sewing~~ assemblers, sewing machine operators and spinners. I was interested in a statement in the report concerning unemployment compensation claims in Janesville. This says that in November unemployment compensation claims averaged 688 weekly, of which 355 were women. This is, I believe, a lower proportion of women claimants than is reported for most of the other areas in the state.

FondDuLac - While there is evidently a tendency for some employers to adopt a policy of replacing women with returning veterans, there is some demand for young women with good eye-sight and nimble fingers for various hand and machine jobs. One firm in the community is anticipating hiring nearly 100 women during the next few months.

Madison - A gradually increasing supply of both men and women workers is becoming apparent in Madison according to the report for that area. The USES estimates that there are about 2700 unemployed persons in the area. A large army air field employing a good many clerical and service workers has been closed. Also the Badger Ordnance works has shut down. Most of the factory jobs for women have been filled. There are some openings for women clerical workers and for women to work in trade and service establishments.

Milwaukee-Waukesha. In 152 reporting establishments employing about 145,000 workers there was a total net increase of 3,425 workers in the period from September 15th to November 15, 1945. In the same period there was a decline in female employment of 1300 workers.

Job opportunities through the USES continued ~~to~~ at approximately 7000 openings throughout the month. Less than 17% of all orders on hand are for female workers. Occupationally, the greatest demand for women is in the clerical and sales field with 34% in these categories and an additional 21% in service occupations.

About 47% of the available labor supply is women. More than 50% of the women workers available have qualifications and desires for re-employment in metal trades but prospects for such employment are very limited. Also the report notes that employment of women is restricted largely to those under thirty years of age and that more than 80% of the female labor supply is above this age.

Kenosha - Total employment in all fields of activity in the Kenosha area for designated periods is as follows:

November, 1944	-	26,650
September 15,1945	-	20,500
October 15,1945	-	20,900
November 15,1945	-	22,300

Additional increases in employment of 1780 to January 15, 1946 are predicted. The greatest increases in employment have been in the automobile industry and knit underwear manufacturing.

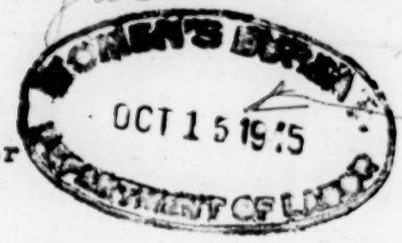
Although employment of women in reporting firms has increased 50 since September 15, 1945, fewer women are employed in proportion to total employment than were employed in November, 1944. At that time 24% of the total employment was women while in November 1945 women constituted 16% of the total employment. Of 725 job openings listed in local USES office only 66 are for women.

Racine - According to recent reports by 26 major manufacturing establishments in the area and upward employment trend has developped. However, the increase in employment from October 15 to November 15th was small and the gain was entirely in male workers. The greatest needs are for men in the agricultural machinery industry and foundries. 85% of all claimants of unemployment compensation are women, while 91% of present job openings are for men. Orders for male workers in the local USES total 2100. Orders for female workers total approximately 100 and are as follows:

Clerical and sales 40%; service 30%; and industrial 30%.

880 women are registered for employment in the area including six veterans. Many of the women are on the older age group and not readily adaptable for referrals to available openings. During the last full week in November there was a total of 123 men (exclusive of 20 veterans) claiming unemployment compensation benefits. The same week there were 830 women claiming such benefits. (A visit was made to Racine December 19th and several hours were spent in the local USES office. An additional report on Racine will be sent to the Bureau separately. The material given here is from the Labor Market Letter).

① Miss Plunkett ② Miss ~~Williams~~ Bagwell Pidgeon



1/23/46 Pidgeon

Miss Frieda Miller, Director October 11, 1945

Return to Bowler 2/16 for filing.

Martha J. Ziegler

Miscellaneous Material on Lay-Offs, Job Openings, and Unemployment Compensation

Attention Mrs. Nason, Mrs. Nyswander, Miss Plunkett, Miss Williams.

Enclosed is some miscellaneous material which I have been able to collect recently concerning lay-offs, applications for Unemployment Compensation, general policies with reference to payment of Unemployment Compensation, and job openings.

The tables marked as "Table Two" and "Table Three" were obtained from ~~the~~ head of the Statistical Division of the Unemployment Compensation Division, Illinois Department of Labor. He also is head of the Program Planning Section of U.S.E.S. for Illinois. You will note that these tables give figures concerning lay-offs by sex and the number of initial claims for Unemployment Compensation filed from August 20th to September 8th. Table Two also shows the percent of all covered workers in Illinois who filed initial claims during this week and the percent of laid off workers who filed initial claims. The last column on Table Two indicates the percent of workers who filed initial claims earlier than the week ending September 8th but failed to report to the Employment Office that week.

I believe that Table Three is self explanatory. Enclosed also is some material received from the Y. W. C. A. The figures on lay-offs were obtained from the Illinois Employment Service, from the same man who gave me copies of Table Two and Table Three.

I also had a telephone conversation with Mr. Schoenberger of the Chicago Employment Service. As of about October 4, 1945 he said there have been 120,000 lay-offs in the Chicago area since V-J Day. Mr. Schoenberger estimated that about 50% of these lay-offs were women, but his estimate may be a little high according to the data on Table Two. Of course the figures show that in any case more women, in proportion to the numbers employed, than men have been laid off. Mr. Schoenberger said that there are no very good figures concerning the number of unemployed men and women seeking jobs through the U.S.E.S. in Chicago. Employment registrations are now being taken for all veterans and for persons that cannot be sent out to a job when they apply. However, Mr. Schoenberger said that a good many people are sent out to places where there are job openings but do not actually get jobs.

The Employment Service has been attempting to get ES-270 reports as of September 1, 1945 from every firm which had 500 employees as of July 1, 1945. Mr. Schoenberger said that some firms do expect to increase their employment. He said that 198 firms employing 245,000 workers with a total of 82,500 women (as of September 1, 1945) anticipate a total net increase in employment by November 1, 1945 of 10,800. Of this 5000 are expected to be women. Practically all of the expected increase in women's employment is in firms engaged in

WOMEN'S BUREAU
OCT 15 1945
DEPARTMENT OF LABOR

food processing or in the manufacture of electrical machinery.

The Regional Office of the Employment Service sent me some material concerning unfilled job openings, indicating something about the rates of pay and the types of industries in which openings are available as shown by the records of the Employment Service. This material does not show any separate figures for men and women, but I think it will be of some general interest.

However, I found some tabulations in the Illinois office of the Employment Service which I believe will be more interesting to the Bureau. Tabulations have been made for a number of Illinois Labor Market areas showing the unfilled job openings listed at Employment Service offices as of September 7, 1945. These openings have been tabulated by occupation and sex and for each occupation the wage range is indicated separately for men and women. No copies of this material were available and I have spent some time in copying the data. It will probably be a week or two before all of this material can be typed and sent to the Washington office.

Enclosed also are a couple of clippihgs concerning general policies being followed by the Illinois Unemployment Compensation Division and a bulletin which explains in some detail the current wage policies of the Division. Some time ago I sent to the office a chart which showed the wage rates considered suitable for persons applying for Unemployment Compensation in Illinois. This chart was divided according to wage rates formerly ~~owned~~ earned by various individuals and the wages considered suitable also varied according to the weeks of unemployment. This chart is no longer being used and has been superceded by the enclosed bulletin.

Incidentally, Mr. Schoenberger indicated, when I was talking with him, that a good many employers are probably recruiting and hiring new workers without using the U.S.E.S. Therefore, I suppose that job openings listed with U.S.E.S. may not be indicative of the job opportunities available in Chicago and in other labor market areas but probably the U.S.E.S. figures are about the only ones available.

C O P Y

THE YOUNG WOMEN'S CHRISTIAN ASSOCIATION

of Chicago

Metropolitan Executive Offices
203 North Wabash Avenue - Room 1602
Telephone Franklin 0760

WOMEN'S BUREAU
OCT 15 1945
DEPARTMENT OF LABOR

September 26, 1945

Dear Miss Ziegler:

In regard to the report on lay-offs which I sent you yesterday, it should be noted that the figures refer to the civilian labor force only, and cover Cook and DuPage counties or "metropolitan Chicago."

I was interested to compare similar figures published in a Chamber of Commerce bulletin for September 11. These statistics cover, I find, five counties, including one in Indiana, and show a larger percentage of women in the working force, as of January, 1945, than do the figures for two counties only. This C. of C. report does not quote lay-offs, - only employment.

Yours sincerely,

(Signed) Elizabeth A. Pargellis

(6)

C O P Y

To Miss Dieckman

Industrial Information Service

Elizabeth A. Pargellis

REPORT ON LAY-OFFS

From August 15 to September 8, 115,000 persons were laid-off in the Chicago area. Of these, 42% were women.

In January, 1945, total employment in this area was 1,900,000 of whom 762,000 were women; 1,147,000 were men. This total had declined by about 200,000 between January and July. A large proportion of those leaving employment were women; but not enough to change the picture radically.

The number of women employed, therefore, is about 33% of the total whereas the number of women laid-off formed 42% of total lay-offs. In other words, about half as many women as men are employed; nearly 4/5 as many women as men have been discharged.

	Women	Men	
Employed	33%	67%	100%
Lay-offs	42%	58%	100%

WOMEN'S BUREAU
OCT 15 1945
DEPARTMENT OF LABOR

COPY

Openings on Order
for Week Ending September 14, and Comparable Weeks,
in Local Offices Serving Selected Labor Market Areas
Region VI

Area	8-24	8-11	9-7	9-14	Major Industries Having Openings
Illinois					
Chicago	46292	49247	48862	50751	Food processing, iron and steel machinery except electrical, printing, wholesale and retail trade and service.
Joliet-Kankakee		1650	1650	1666	Petroleum and coal, iron and steel, stone and glass.
Peoria-Pekin	1491	1371	1250	1382	Food processing, manufacturing, machinery, wholesale and retail trade.
Quad Cities		3500	3100	3200	Manufacturing, machinery, iron and steel.
Rockford		4350	3500	3150	Government, trades and services, manufacturing and machinery.
Springfield-Decatur	2400	2800	2800	2650	Transportation, food processing, iron and steel, trades and services.
Indiana					
Evansville-Henderson	1157	1129	1086	1020	Trades and services, cigar manufacturing.
Fort Wayne		2323	3100	3400	Food processing, trade and service, auto manufacturing, Construction.
Gary-Hammond South Chicago	4611	4366	6723	6973	Iron and Steel
Indianapolis	6716	7050	8569	8217	Transportation, communication, public utilities, wholesale and retail trade, food product
Muncie		1500	2000	2000	Food processing, glass manufacturing, iron and steel, railroads.
South Bend-Elkhart	2449	2365	2637	2907	Manufacturing, trades and service, construction and transportation.
Terre Haute		1550	1586	1326	Railroads, food processing, iron and steel.
Wisconsin					
Madison-Merrimac		1496	2102	2230	Meat packing, trades and service, manufacturing, electrical machinery, seasonal food processing,
Milwaukee-Waukesha	8800	9082	8800	8000	Construction, nonelectrical machinery, iron and steel, wholesale and retail trade.
Racine		1129	1156	1257	Iron and steel, manufacturing non-electrical machinery, wholesale and retail trade.

Division of Program Requirements, Warmanpower Commission, Region VI
September 22, 1945

(6)

Selected Base Closing
Impact of Reconversion in 16 Labor Market Areas
Region VI

Area	Layoffs Period Ending: 6-24	6-30	Openings on order Period Ending: 8-24	8-31	Major Industries Having Curtail...
Illinois					
Chicago	64,237	10,911	46,252	49,247	Manufacturing, trade, service, utilities
Joliet-Kankakee		1,000		1,560	Trade, service, steel, petroleum
Peoria-Pekin	754	47	1,451	1,372	Machinery, food processing
Quad Cities		933		3,500	Machinery, iron and steel
Rockford		250		4,360	Government, trade, service, machinery
Springfield-Decatur	62,000	525	2,100	2,900	Transportation, food processing, trade, service
Indiana					
Evansville-Henderson	10,455	5,906	1,157	1,325	Trade, service, cigar mfg., meat packing, coal
Fort Wayne		430		2,223	Food processing, auto mfg. railroad, construction
Gary-Hammond-South Chicago	6,750	1,305	4,661	2,366	Iron & steel, transportation equip, machinery
Indianapolis	15,000	0	6,726	7,050	Transportation, food products, communications, trade
Muncie		0		1,500	Glass, aviation, railroads food processing
South Bend-Elkhart	9,737	505	2,449	2,745	Manufacturing, trade, service construction
Terre Haute		250		1,500	Ordnance, intermediate railroad, food processing
Wisconsin					
Madison-Janesville		1,150		2,406	Meat packing, heavy mfg., trade, services
Milwaukee-Kenosha	28,000	1,300	6,500	9,082	Iron & steel, food products, machinery, trade
Racine		0		1,219	Foundry, farm machinery, service shop products

Regional Office, Region VI
War Manpower Commission
Division of Program Requirements
September 7, 1945

Illinois

Table 2. Impact of Cutback Layoffs on Unemployment Compensation for Selected Labor Market Areas

LABOR MARKET	Layoffs Aug.15-Sept.8			Initial Claimants Aug.20-Sept. 8			Percent of covered workers who filed Initial Claims Aug.20-Sept.8	Percent of Laid off Workers who filed Initial Claims		Withdrawal Rate Week Ending Sept. 8
	Number	Percent who were:		Number	Percent who were:			Male	Female	
		Male	Female		Male	Female				
STATE	161,700	52.7	47.3	126,581	45.2	54.8	5.9	67.1	90.8	44.7
CHicago	115,000	57.4	42.6	90,762	45.9	54.1	6.1	63.1	1/	43.9
Aurora-Elgin	3,100	43.3	56.7	2,501	39.3	60.7	6.8	73.4	86.2	64.1
Danville	2/	2/	2/	1,123	53.8	46.2	8.3	2/	2/	52.4
East St.Louis	4,640	53.0	47.0	4,623	47.2	52.8	4.8	88.7	1/	56.9
Joliet-Kankakee	6,680	58.5	41.5	3,873	40.9	59.1	8.9	40.5	82.6	36.5
LaSalle-Ottawa	3,230	49.5	50.5	2,967	33.0	67.0	9.8	61.2	1/	40.3
Peoria-Pekin	725	55.2	44.8	460	42.9	57.1	0.7	49.2	80.9	49.7
Quad Cities	4,590	51.1	48.9	1,096	25.6	74.4	3.2	12.0	36.2	73.5
Rockford	2,960	60.1	39.9	1,784	37.7	62.3	3.9	35.8	94.2	59.0
Springfield-Decatur	11,050	46.4	53.6	6,028	35.2	64.8	9.2	41.4	66.0	38.1
Waukegan	715	50.1	49.9	568	41.0	59.0	2.3	63.8	95.7	2/

1/ Percent approximates 100.

2/ Data not available

Illinois

Table 3. Comparison of Job Openings and Initial Claimants, by Sex and by Labor Market Area

LABOR MARKET AREA	Percent of Initial Claimants in Specified Labor Market Areas Aug.20-Sept. 8		Percent of Job Openings in Specified Labor Market Areas Sept. 8		Percent of Initial Claimants, Aug.20-Sept. 8 Who Were:		Percent of Job Openings, Sept. 8 for:	
	Male	Female	Male	Female	Male	Female	Male	Female
Chicago	81.2	77.8	71.1	83.7	45.2	54.8	64.7	35.3
Danville	1.2	0.8	.6	.5	53.8	46.2	73.4	26.6
East St. Louis	4.4	3.9	5.4	.5	47.2	52.8	96.0	4.0
Joliet-Kankakee	3.0	3.6	2.6	1.6	40.9	59.1	77.8	22.2
LaSalle-Ottawa	1.9	3.2	2.1	1.5	33.0	67.0	75.2	24.8
Peoria-Pekin	0.4	0.4	2.1	1.1	42.9	57.1	80.6	19.4
Quad-Cities	0.5	1.3	4.2	1.4	25.6	74.4	86.7	13.3
Rockford	1.3	1.8	4.7	5.0	37.7	62.3	67.0	33.0
Springfield-Decatur	4.1	6.2	4.5	2.6	35.2	64.8	78.9	21.1
Waukegan	0.5	0.5	2.6	2.1	41.0	59.0	73.1	26.9
Herrin	1.5	0.5	.1	a/	69.1	30.9	75.4	24.6

a/ Less than .1 per cent.

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU

To—		From—	Re Attached Please—
	Anderson.		Approve
	Nienburg.		Comment
	Larrabee.		Note
	Benham.		Note and return
	Dern.		Reply
	Erickson.		Draft of reply
	Hyde.		Signature
	Manning.		Would like to discuss
(2)	Mettert.		File
	~~Pidgeon.~~		
(1)	~~Robinson.~~		Date
	Smith, F.		Note: original sent to Miller
	Spring.		Manning
	Stitt.		Had min vgge case material with carbon was sent Women's Ang
	Files.		Clippings not enclosed

OPO 16—24460

INDIANA SET TO TEST WOMEN'S PEACE JOB

Organizations Are Urged to Form Group for Drafting 'Reconversion Blueprint'

PLACEMENT OFFICE AN AIM

Layoff Policies and Retraining Facilities Will Be Other Objectives of Proposal

mar. 1, 1945

Special to THE NEW YORK TIMES.

WASHINGTON, Feb. 28—National organizations of women have called their representatives in Indiana to meet at Indianapolis with a view to starting in that State a "reconversion blue print" for women.

From three States considered as presenting typical reconversion problems so far as women workers are affected, Indiana was chosen by a committee from the national groups.

Dr. Kathryn McHale, general director of the American Association of University Women, Mrs. Lafell Dickinson, president of the General Federation of Women's Clubs, and Miss Ann Lord Strauss, president of the National League of Women Voters, stated that their organization, with others, had invited their Indiana representatives to meet with a view to starting the State-wide project. Also among the groups were the Women's Trade Union League and labor organizations. Mrs. Helen B. Sauer of the Women's Bureau was sent to Indianapolis as adviser.

Miss Frieda Miller, director of the Women's Bureau, said:

"Groups of women who already have an established interest in women's economic status, their broad employment opportunities and their industrial advancement, may well work together to develop a program dealing with the problems arising out of this extended wartime problem of women getting into new jobs."

The "reconversion blueprint" calls for such activities as analyzing job shifts; promoting layoff policies to prevent discrimination against women; fostering public employment service facilities; opening to women the benefits of counseling, training and retraining.

It is understood that the women's groups of hte "blueprint State" would probably organize such activities on a State basis, and in the major manufacturing centers. They would also promote State and local legislation to further such aims.

The recent Woman's Bureau analysis of State labor laws for women showed for Indiana no law on daily or weekly hours of work or a day of rest; none on lunch rooms, maternity leave, minimum wage or equal pay.

Miss Frieda Miller, Director

Martha Ziegler

February 12, 1945

Attention Miss Manning, Miss Robinson, Miss Pidgeon

Attached are some miscellaneous clippings. I tabulated very roughly the number of men and women workers which are wanted by the plants listed in the Chicago Times story of February 5th. I believe there are slightly under 1300 women listed and about 6250 men. In addition the Douglas Company is requesting 1042 workers who may be either men or women. Evidently the urgent demands for labor in the Chicago area could be met by 8500 to 9000 workers.

In this list and in numerous other similar lists the American Brake Shoe and Foundry Company is listed, with a demand for 39 men. About ten days or two week ago I made a visit to this plant with Mary White of the War Production Board who had been compiling some information concerning "must firms", particularly those who are falling behind in their production schedules. Miss White and I first talked with a representative of the Union (UAW-CIO). He claimed that the Union is willing to have women employed in this plant and that there would be a way of working out the transferring of some men to the more difficult jobs. However, I gathered from his comments that probably the Union would expect any men transferred to other jobs to receive at least as much money as they are receiving on their present jobs.

Miss White made arrangements for us to go with Mr. Mariana (the Union representative) to a meeting at the plant where she understood the members of the Shop Committee were going to discuss the possibility of employing women with Mr. Hogan, the plant Superintendent. Miss White telephoned Mr. Hogan and he agreed that it would be alright for us to come to see him. However, the meeting with the Union was to be held late in the afternoon and just before we were planning to leave the Union office Mr. Mariana said that he had to stop at another plant first. He finally said that he did not believe it would be possible for him to get to the Brake Shoe Company that day.

The next day Miss White and I went to see Mr. Hogan by ourselves. He immediately said that there are some jobs which women can do but that some of these jobs paid very well and the men are unwilling to take other, less desirable jobs. Of course he blamed the Union in large measure for the situation. I do not know whether Mr. Mariana had a last minute emergency call which kept him from going to the plant with us, or whether he was not very anxious to go with us to see Mr. Hogan.

I imagine that neither the Company nor the Union has been very eager to have women employed. Mr. Hogan said that for one thing the Company has no wash room facilities for women and that it has no facilities for men which could be readily converted. I gained the impression that he did not feel it would be sensible to spend money on wash room facilities at this stage of the war.

Miss Frieda Miller, Director
Miss Manning, Miss Robinson,
Miss Pidgeon

Mr. Hogan also indicated that probably the men workers might agree to transfer to some of the harder, heavier jobs which women could not do if they were paid the rates for the jobs they are now on. He said that on at least a few of the jobs which women might do men are earning $10.00 or $12.00 a day doing piece work. However, Mr. Hogan said that the Company is working on fixed price contracts and has been trying to get some price relief from the O.P.A. for several years. He claimed that the Company is losing money anyway and so certainly cannot afford to increase its costs.

Later, Mr. Hogan took us for a brief tour of the plant. The foundry is relatively small and I am doubtful whether there are many jobs which women could do in the foundry itself. There is only one core maker employed. Several men are employed to do pouring but this work is hard and hazardous. The bulk of the workers make molds. The equipment on the side of the foundry which is in operation is old and a good deal of hand work and some lifting is evidently required. About three men are employed at the knock-out machine.

Miss White was especially interested in visiting this plant because she had read in various Government reports that the more modern part of the foundry is not being used at all. She thought that this was in a new building and that probably women could be employed to some extent in a modern foundry. Mr. Hogan stated that this equipment has not been used since it was installed about 1927. This equipment is in the same building with the part of the foundry which is operating. In fact the two "lines" are separated only by a center aisle. It would appear that production certainly could be increased materially if this part of the foundry could be used. The mold making machines are automatic and the line could presumably be operated even more easily than that on the old side of the foundry. Mr. Hogan said that some of the work being done in the foundry must be done by hand, which explains why the old part of the foundry is being used at present rather than the new equipment. Mr. Hogan says that thrity-nine or forty men are required to put the new part of the foundry into operation. He said many times five or ten men would do him no good, that he must have forty or he does not need any.

Mr. Hogan was asked whether women might be able to do some of the work at the automatic molding machines but he said the operators would have to lift the molds after pouring has been completed from the machine to a conveyor. He He does not believe it would be feasible to have one or two men assigned to do the lifting.

As a matter of fact, however, there are some other jobs in this Company, not in the foundry itself, which it appeared women might very well do. In fact the Company already has six women employees who bundle wire by hand. Small pieces of wire, bundled together, and certain small metal parts are made separately and put in the castings during the molding process. These wires and small parts are prepared in the parts building.

Mr. Hogan stated that one of the women in the wire bundling room also runs a wire shearing machine at times and does some of the other work in the

department when workers are absent. Mr. Hogan said that the men do not object to this woman doing jobs which do not interfere with the men.

Mr. Hogan pointed out one man who was assembling some wires and some other small parts together. He was lacing the parts together, using a few pieces of wire which he was twisting together with a hand wrench. The job appeared very similar to many jobs which women are doing in other plants. It certainly requires finger dexterity and also is a monotonous job. Certainly many people have claimed that such a job is a typical woman's job. However, Mr. Hogan claimed that women have been tried on this job but were not successful. He said that the man has been doing the job for years and has built up great speed. He also claimed that the man is able to earn ten or twelve dollars a day on a piece work base.

Other men in this room operate several wire bundling machines and a couple of other men were doing some of the miscellaneous lifting and carrying of materials which is necessary. There was no opportunity to study the work at the wire bundling machines and so I could not express opinion as to the suitability of these jobs for women. It seemed obvious, however, that at least a few additional women could replace men in this department.

In another room in this building there were a number of punch presses where some of the parts used in the brake shoe are made. Mr. Hogan and another Company representative stated that these punch presses are old types which are dangerous. There was some comment made indicating that new machines have been ordered but have not arrived. However, a number of men in this department were doing very simple types of work handling small parts. Some of them were standing along conveyors lifting parts from one spot to another and some were off-bearing parts from presses. Mr. Hogan admitted that possibly ten or fifteen more women could be used in the punch press and wire bundling rooms. However, he claimed that the men were unwilling to give up these jobs and transfer to the foundries. If the rates are substantially higher in the parts division, as they apparently are, I think it is probably true that the men are reluctant to transfer. Mr. Hogan also stressed the fact that even if he could replace fifteen or twenty men by women in the parts division he still would not have enough men to start the other line in the foundry.

On such a brief visit I could not be too certain of the situation, of course. However, one thing seems rather obvious. This Company, according to various reports, has been very far behind on its production schedule for some time. Mr. Hogan once was planning to fly to the Barbados Islands to recruit labor. However, the Union has refused to agree to the employment of such labor, on the grouns that other workers, including women, are available. Mr. Hogan told us that he has tried in every conceivable way to recruit men and evidently has been in touch with the War Production Board and other agencies. He told us very confidentially that he is now negotiating for some prisoners of war to work in the plant. Despite the importance of the product, brake shoes for railroad cars, the low rate of production etc., no one has been able to bring about the employment of women in this plant during all these war years.

Among the other clippings enclosed is one announcing an addition to the shell loading plant of the Rheem Mfg. Co. in Birmingham, Ala. This plant seemed to be utilizing women rather well when I visited it in the Fall of 1943 and so I suppose there may be some additional jobs for women in Birmingham.

Miss Frieda Miller, Director
Miss Manning, Miss Robinson,
Miss Pidgeon

Since I began dictating this memorandum I have seen a story in the Chicago Sun, February 13th, which is attached. It is a story in which the Regional Director of the W.M.C. is asking employers to keep on their pay rolls all those who are presumably to be transferred to war industries until definite arrangements for such transfers have been made. I am curious about this story for several reasons and shall try to get more information from time to time. Perhaps some employers are simply firing workers whom they have decided they might lose anyway. Also I wonder whether they are releasing the least desirable employees who cannot be placed successfully elsewhere by the U.S.E.S. Also, of course, I wonder whether the U.S.E.S. is already having trouble to find jobs for some of the applicants.

Also the last paragraph of this news story seems somewhat significant. I wonder who is to decide whether a non-essential employer can release 10% of his men without crippling his business. If the employers are permitted to decide this, I am doubtful whether many of them will think they can release 10% of their male employees. From past experience, it is my guess that probably loop-holes are already beginning to appear in the latest W.M.C. policies for the Chicago area.

Miss Frieda Miller, Director

Martha Ziegler

WOMEN'S BUREAU
JAN 2 1945
DEPARTMENT OF LABOR

January 20, 1945

Attention Miss Manning, Miss Robinson and Miss Pidgeon.

Enclosed are a few clippings concerning labor supply, post-war prospects, etc. I thought in view of Miss Manning's recent memorandum she might be particularly interested in some of the recent newspaper stories concerning labor supply problems in the Chicago area. I was interested to note the story in the Tribune, January 13th which implies that some war plants are not ready to hire some of the 4-F's who are being urged to move to war industries. Recently I made some comments about the fact that no women have been employed to operate taxi cabs or street cars in Chicago. You will note from the clippings that this subject is now receiving some discussion. Mary White told me today that she knows Mr. Kehoe and [redacted] we can find time we may try to see him to get more information about the transportation situation. You will also note that some kind of a lay-off seems to be pending at the Pressed Steel Car Company. You may remember that this is the plant I visited last Fall where women are being used so extensively on tank manufacturing. I have not as yet had time to call anyone at the plant or in the Union to inquire about this lay-off, but shall try to do so soon.

By now all of you have probably seen the clipping sent to the office indicating the current demand for men and women workers in fifty-seven of the important plants in this area. I believe that the total number of workers listed was somewhere between 8200 and 8300 and that of these, approximately 1200 were women. I perhaps should have said that I have the impression some of the general stories concerning manpower needs in this area have mentioned the need for 30,000 or 35,000 workers. However, my memory may be poor or the higher figures may be supposed to cover demand over a rather long period.

Miss Manning inquired whether I see the W.M.C. Demand-Supply Supplements. I do not see these supplements regularly but do have access to them if I wish now and then to look up material for certain specific areas. Five or six months ago I was told that fewer copies of these reports were available than formerly and so individual copies could not be given out freely. However, I have been able to use these reports in the Regional Office of W.M.C. and on one occasion was told that I might be able to get a copy of a report for some particular area if I had a special need for it and could send in my request several weeks ahead of the time when a new report would be due.

Recently, however, I went to the Illinois W.M.C., which is in the Merchandise Mart, to use some reports for the Illinois area. The persons I usually see were out and so I saw someone else who checked with the Assistant State Director and then said that I might take the reports with me. If the Bureau would like me to get recent Demand-Supply material for some of the other important war centers in this region, I believe I could obtain it from the Regional W.M.C. Office. I have copied material there numerous times and have always had very fine cooperation from the staff.

WOMEN'S BUREAU

9/4/46 (6)

I N D I A N A

FORT WAYNE AREA
(Includes Huntington)

Employment Situation in Manufacturing Industries and Housing and Living Conditions

November 1944

Women employed in November 1944 in 53 establishments - 18,133 or 39.3 percent of all employees.

In 16 plants manufacturing various metal products, the number of women increased from 3,800 in July 1942 to 9,900 in April 1944 (peak employment, up to this date, of women in these plants).

Major Industries:

Machinery, electrical and other (radios, industrial machinery, electrical appliances, wire); automobile and auto parts (trucks and trailers); transportation equipment other than auto (aircraft engine and parts, barges); ordnance and accessories; food and kindred products; apparel; government (Army Air base, ordnance depot); foundries. Pre-war civilian manufacturing industries were: machinery, electrical and other (including dispensing pumps); automobile and auto parts; food and kindred products; apparel; foundries.

Employment Prospects:

Good throughout the area. Major war industries predict further expansion. Construction workers (skilled and unskilled) will also be needed in early spring. Approximately 35 percent of the present demand can be filled by women. The majority of all industrial jobs call for unskilled workers. Post-war employment levels are expected to remain fairly high. Trade and service establishments will offer many opportunities since they have been unable to hire sufficient workers. Firms now producing ordnance will convert to manufacture of pumps and washing machines when the war is over. Electrical equipment manufacturers will convert to their peacetime production of radios, refrigerators, and other electrical appliances.

Industry Needs Between November 1944 and May 1945:

Employment expansion and Selective Service replacements total approximately 4,500. Industries with the largest number of jobs to be filled are: electrical machinery, 1,000; ordnance and accessories, 500; automobile and auto parts, 200; railroad shops, 200; government, 200; foundries, 100.

Jobs Immediately Available:

The greatest demand is for unskilled workers for light factory work and sewing machine operators. Husky laborers are needed by foundries. Skilled and semiskilled workers will be hired if available. Trade and service jobs in practically every classification are open.

Major Firms 1/:

General Electric Co. (Fort Wayne and Decatur); International Harvester Co.; Studebaker Corp.; Magnavox Co.; Bowser, Inc.; Tokheim Oil Tank and Pump Co.; Zollner Machine Works, Inc.; Farnsworth Television and Radio Corp. (Fort Wayne and Bluffton).

Scheduled Hours and Beginners' Wages:

	Hours	Cents per Hour	
		Men	Women
Machinery, electrical and other	48	55-83	42-65
Automobile and auto parts	48	50-77	45-65
Transportation equipment	48	55-85	50-80
Ordnance and accessories	48	50-85	45-70
Food and kindred products	40-48	50-85	45-85
Apparel	40-48	57-70	40-60
Foundries	48	60-70	55-60

Housing and Living Conditions:

Dwelling units for families are scarce. Houses being constructed are practically completed and new allotments are now under consideration. Apartment rents average $50 a month and up. Rooms are available in occupied dwellings. Other community facilities are adequate.

1/ Industrial plant and plant site to be disposed of by Defense Plant Corporation:

General Electric Co: Product, boring, broaching, burring machines, lathes, grinders, drilling machines, furnace drop hammers; Acres, 47; buildings, 717,122 sq. ft.

Studebaker Corporation.; Product, gears for aircraft engines; Acres, 60.43; Buildings 413,605 sq. ft.

WOMEN'S BUREAU

INDIANA

9/4/46 (6)

GARY-HAMMOND-SOUTH CHICAGO AREA
(Includes Whiting, Valparaiso, Ind., and Calumet, Ill.)

Employment Situation in Manufacturing Industries
and Housing and Living Conditions

November 1944

Women employed in November 1944 in 82 establishments - 21,881 or 18.3 percent of all employees

Major Industries:

Iron and steel (armor plate, steel tubing, fabricated steel, armor castings); petroleum and coal (gasoline, motor oil, greases, wax, fuel oils); chemicals and allied products (alcohol, sulphuric acid, muriatic acid); ordnance and accessories (tank parts, shells, magnets); foundries (castings, forgings, tank springs); aircraft; non-ferrous metals. The major pre-war industries, now converted to war production were: iron and steel; foundries; petroleum; chemical.

Employment Prospects:

Very good for unskilled workers particularly in iron and steel, foundries and ordnance. Post-war opportunities following the defeat of Germany should be very good since most of the present items produced were manufactured prior to the war, and very little reconversion is required. Following the defeat of Japan, however, some unemployment will occur unless the 1940 level of civilian production is greatly increased.

Industry Needs Between November 1944 and May 1945:

Employment expansion and Selective Service replacements total approximately 14,000. The industries with the largest number of jobs to be filled are: iron and steel, 7,000; ordnance, 1,200; apparel, 600; petroleum, 300; non-ferrous metals, 200.

Jobs Immediately Available:

Unskilled workers in practically all plants are urgently needed. Iron and steel plants and foundries are in critical need of laborers. Jobs are available for women in most factories.

Major Firms: 1/

Carnegie-Illinois Steel Corp. (three plants); American Bridge; Inland Steel Co.; Youngstown Sheet and Tube Co.; National Tube Co.; Tubular Alloy Division; American Steel Foundry; Pullman Standard Car Mfg. Co.; Standard Oil Co.; General American Transportation Corp.

Scheduled Hours and Beginners' Wages:

	Hours	Cents per Hour	
		Men	Women
Iron and steel	48-60	78-84½	78-84½
Foundries	48	78½	78½
Chemicals	48	83½-90	80-83½
Petroleum	48	85-96	85
Non-ferrous metals	48	78	78
Ordnance	48	70	60

Housing and Living Conditions:

With a scarcity of family dwellings, the housing problem is becoming increasingly acute. Rooms are still adequate, renting from $5 a week up. Most landlords would rather sell than rent. Although there are six nursery schools accommodating about 400 children, there are still about 250 on the waiting list with other applications coming in. Several of the nursery schools are in operation 24 hours a day, and it seems an impossibility to obtain space adequate to house all the available children. Other community facilities are taxed to the utmost. Living costs are higher than for the average city.

1/ Industrial plants and plant sites to be disposed of by Defense Plant Corporation:

Pullman Standard Car Manufacturing Co.; Product, shell gun carriages - tanks. Acres, 57.

Carnegie-Illinois Steel Corp.; Product, coke and by-products; Acres, 5; Buildings, 10,123 sq. ft.

Republic Steel Corp.; Product, radiant tube car type furnaces, pot type annealing furnaces, roto-blast unit; Buildings, 1,710 sq. ft.

Indiana Steel Products Co.; Product, grinders, lathes, furnaces, millers, etc.; Acres, ½; Buildings, 19,218 sq. ft.

WOMEN'S BUREAU

9/4/46 (b)

INDIANA

INDIANAPOLIS AREA
(Includes Shelbyville)

Employment Situation in Manufacturing Industries and Housing and Living Conditions

November 1944

Women employed in November 1944 in 92 establishments - 32,767 or 34 percent of all employees.

Major Industries:

Chemicals and allied products (drugs and medicines); nonelectrical machinery; rubber products (inner tubes); iron and steel products (castings, chains); transportation equipment (aircraft engines, parts, propellers); automobiles and auto equipment (truck engines, automobile parts); ordnance and accessories (tank parts, shells, fire control equipment); food and kindred products (meat packing); electrical machinery (radio equipment); transportation (railroads and repair shops, street railways); U. S. Government establishments; State Government; wholesale and retail trade. The principal pre-war industries, now converted to war production, were: automobiles and auto equipment; electrical machinery; chemicals and allied products; rubber products; textile mill products; iron and steel products; food and kindred products.

Employment Prospects:

Excellent for men in most major war industries. For women, prospects are good and have improved during the past two months, especially in the electrical machinery and ordnance industries. Serious labor shortages exist, and the demand for unskilled males has increased since September 1.

Post-war job prospects should be good, although during the reconversion period some temporary unemployment is expected, due to heavy reductions in employment at aircraft and ordnance plants. Industry in the area is normally both large and well diversified, and with a number of concerns planning expansion in civilian production, employment following the defeat of Japan should be less than the wartime peak but greater than 1940.

Industry Needs Between November 1944 and May 1945:

Employment expansion and Selective Service replacements total approximately 12,000. The industries with the largest number of jobs to be filled are: electrical machinery, 1,400; food, 1,300; iron and steel, 900; ordnance, 800; non-electrical machinery, 700; transportation, 500; rubber products, 800.

Jobs Immediately Available:

Demands for unskilled male workers are greatest in the foundries and meat packing plants, but the number of openings for trainee machine operators in various industries remains large. For semiskilled men, there are many opportunities on drill press and screw machine jobs. Requirements for skilled males are at present primarily for engine lathe, grinder, and turret lathe operators. Openings for unskilled women workers (trainee assemblers, testers, inspectors) are most numerous in plants producing electrical machinery and equipment. Demands for stenographers, typists and comptometer operators continue to be very heavy.

Major Firms: 1/

International Harvester Co.; U. S. Rubber Co.; R. C. A. - Victor Division; Kingan and Co.; Eli Lilly and Co.; Link Belt Co.; Allison Division, G.M.C.; Bridgeport Brass Ordnance; Lukas-Harold Corp.; P. R. Mallory Co.; Chevrolet Commercial Body Division, G.M.C.; Curtiss-Wright Corp.

Scheduled Hours and Beginners' Wages:

	Hours	Cents per Hour	
		Men	Women
Ordnance	48-54	55-72	50-70
Food	48-72	52-70	45-61½
Rubber products	48	60-67	45-57½
Iron and steel	48-60	55-80	50-65
Non-ferrous metals	48	65	65
Electrical machinery	48	60-78	55-70
Machinery, except electrical	48-60	55-75	50-60
Automobiles and auto equipment	48-58	60-77	50-77
Transportation	48-56	65-73	65-66

Housing and Living Conditions:

Family housing facilities continue to be inadequate, although one-and two-room dormitory accommodations are available. Rentals for one-bedroom dwelling units range from $32 to $45; for two-bedroom units, from $50 to $66. In Indianapolis the cost of living increased slightly between June 15 and September 15, but the city's index for food costs remains one of the lowest in the East-North Central group. Day care facilities are being expanded, and medical care, food distribution, and other community facilities are adequate.

1/ Industrial plants and plant sites to be disposed of by Defense Plant Corp.:
Fall Creek Ordnance Plant, E. C. Atkins Co. Product, armor plate; Acres, 20; Buildings, 160,700 sq. ft.
Fall Creek Ordnance Warehouse. Principal product, storage of equipment; Acres, 6; Buildings, 89,300 sq. ft.
Bridgeport Brass Co.; Product, brass and brass cartridge cases; Acres, 93; Buildings, 634,321 sq. ft.
Curtiss-Wright; Product, metal machining and forming raw materials; Acres, 10.3; Buildings, 476,518 sq. ft.
General Motors Corp., Allison Division; (1) Product, engineering and development of aircraft engines; Acres, 1.2; Buildings, 22,706 sq. ft.
(2) Product, lathes, grinders, milling machines, shearers, presses, planers, etc.
Plant #3, Acres, 6.69; Buildings 100,860 sq. ft.
Plant #5, Acres, 216; Buildings, 1,440,000 sq. ft.

WOMEN'S BUREAU

INDIANA

9/4/46 (6)

LOUISVILLE (KY) AREA
(Includes New Albany, Jeffersonville, Ind.)

Employment Situation in Manufacturing Industries
and Housing and Living Conditions

November 1944

Women employed in November 1944 in 84 establishments - 29,094 or 32.6 percent of all employees

Major Industries:

Chemicals and allied products (synthetic rubber, industrial alcohol, paints and varnishes); ordnance (smokeless powder, powder bag manufacturing, naval ordnance); iron and steel products (forgings, sheet metal fabrication); non-ferrous metal products; shipbuilding; aircraft and parts; non-electrical machinery (farm implements, valves, boilers); automobiles and automobile equipment; food processing (including distilleries); apparel; tobacco; furniture and finished lumber products; wholesale and retail trade; U. S. Government (quartermaster depot, army hospital, air base, medical depot).

Employment Prospects:

Very good in most war industries in the area since further expansion in production is expected. Currently little expansion in civilian industries is planned but where expansion occurs workers will be transferred within the plant. Recent plans for new construction will require approximately seven or eight thousand workers during the next six months. After the war, many industries, such as shipbuilding, ordnance, synthetic rubber, etc., which are new in the area, will probably remain but will decline in employment. Industries such as distilleries and tobacco will likely maintain their present level of employment or may even increase it.

Industry Needs Between November 1944 and May 1945:

Employment expansion and Selective Service replacements total approximately 8,000 excluding construction demand. The industries with the largest demand for workers are: ordnance, 3,000; non-ferrous metals products, 700; chemical and allied products, 600; iron and steel products, 500; non-electrical machinery, 400. In addition, new construction projects will require about 8,000 workers, according to preliminary estimates.

Jobs Immediately Available:

Skilled, semiskilled and unskilled workers are still urgently needed by the majority of war industries, particularly ordnance, non-ferrous metals, non-electrical machinery and chemicals. Unskilled workers for both production jobs and construction are especially in demand while mechanics, welders, carpenters, and machinists are also urgently needed. Women are needed for light factory jobs.

Major Firms:

Curtiss-Wright; Vultee; Indiana Ordnance Works; Hoosier Ordnance Works; Reynolds Metals; Jeffersonville Boat and Machine; Westinghouse; B. F. Goodrich.

Scheduled Hours and Beginners' Wages:

	Hours	Cents per Hour	
		Men	Women
Ordnance	48	60-71	55-68
Chemicals	48	60-78½	50-65
Non-ferrous metals	48-52	50-65	57
Aircraft	48	65-75	60-75
Automobile and automobile equipment	48	60-85	60
Non-electrical machinery	48	45-59	45-50
Shipbuilding	48	78-83	78-83

Housing and Living Conditions:

The housing situation in the area is very serious. The vacancy rate for the Louisville area is four-tenths of one percent. However, in the next 6 months 622 private and public dwelling units are expected to become available, of which 105 for public conversion dwelling units. Rentals in public housing including utilities, will range from $40 to $60 per month. Other community facilities such as transportation, medical care, food distributions are adequate.

WOMEN'S BUREAU

INDIANA

9/4/46 (6)

SOUTH BEND AREA

(Includes Mishawaka, Elkhart, Goshen, Warsaw, Nappanee, Plymouth)

Employment Situation in Manufacturing Industries
and Housing and Living Conditions
November 1944

Women employed in Nov. 1944 in 58 establishments - 17,976 or 29.5 percent of all employees.

In 4 plants manufacturing various metal products, the number of women increased from 100 in July 1942 to 600 in April 1944 (peak employment of women, up to this date, was 800 during the period July to October 1943).

Major Industries:

Ordnance and accessories (munitions castings, incendiary bombs); apparel and finished products; lumber, timber, and basic products; chemical and allied products (pharmaceuticals, rations); miscellaneous rubber industries (self-sealing gas tanks); aircraft and parts (carburetors, airplane engines); non-ferrous metals and products; machinery, electrical and non-electrical (electric switch boxes, marine bearings and stern tubes, farm implements); automobiles and auto equipment (military trucks, weasels); transportation; communication; government (Army depot). The area's pre-war civilian manufacturing industries, now converted to war production, were: iron and steel; automobiles and auto equipment; machinery; rubber products; aircraft and parts.

Employment Prospects:

Good in the major war industries. Although most of the principal plants have attained their employment peaks and are leveling off, a continued need exists for additional workers in many of the smaller establishments and for military replacements.

Very high employment levels are anticipated following the defeat of Germany. Most of the anticipated declines in aircraft and other munitions industries are expected to be offset by expansion in machinery, trade and service, and construction industries. Following the defeat of Japan, however, some unemployment will result as aircraft employment, which represents almost one-third of total manufacturing employment, is sharply reduced.

Industry Needs Between November 1944 and May 1945:

Employment expansion and Selective Service replacements total approximately 4,500. The industries with the largest number of jobs to be filled are: rubber, 2,800; farm equipment, 700; machinery, except electrical, 600; apparel, finished, and similar products, 400; automobile, 300. Between November 1944 and January 1945 industry needs total 6,500, but a cutback in aircraft during February 1945 is expected to reduce needs by 2,000.

Jobs Immediately Available:

Skilled, semiskilled and unskilled male and female workers are needed by all major war industries, particularly the apparel, rubber, and machinery industries. General laborers, foundry and forge shop laborers, railroad workers, machinists, machine operators (skilled and semiskilled) and tool and die makers are especially in demand, just as are women for the lighter factory jobs.

Major Firms: 1/

Studebaker Corp.; Automotive and Aviation Divisions; Bendix Products Div.; Ball Band Plant of the U. S. Rubber Co.; Oliver Farm Equipment Co.; Dodge Mfg. Co.; Miles Laboratories, Inc.; C. C. Conn, Ltd.; Chicago Telephone Supply Co.; Penn Electric Switch Co.; International Detrola Corp.; Adams-Westlake Co.

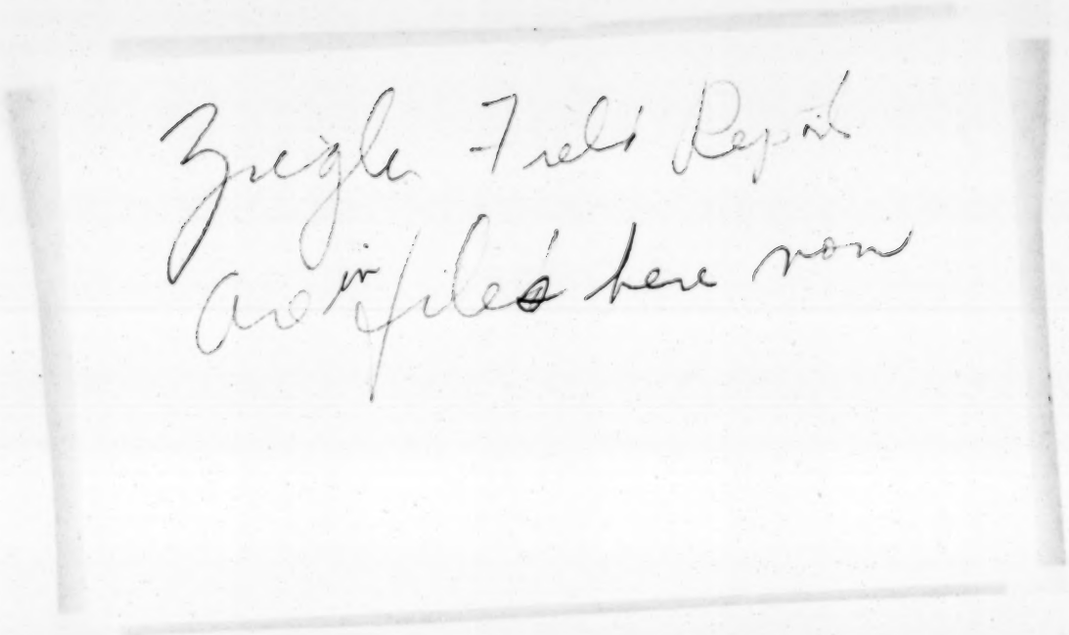
Scheduled Hours and Beginners' Wages:

	Hours	Cents Per Hour	
		Men	Women
Aircraft and parts	48	65-95	50-85
Rubber	48	50-65	50-65
Plywood products	48	50-75	45-60
Automobile and auto equipment	48	65-95	66
Machinery	48	50-90	60
Professional and scientific instruments	48	60	60
Chemicals and allied products	48	60	50
Explosives	48	90	70

Housing and Living Conditions:

Housing accommodations in South Bend are inadequate. It is planned that by the end of the year 500 new houses will be privately constructed and that 250 existing dwelling units will be remodeled. Twenty-five homes were converted into approximately 120 unites and are ready for occupancy. Only indispensable in-migrant war workers may rent the new apartments. Construction on 59 additional new homes have been started. In Elkhart, rental houses are scarce. Apartments and rooms are available for whites only, but this supply is limited and restricted to couples without children. Retail clothing and food prices are considered to be average for cities of this size. Although the need for day-care facilities has decreased somewhat in the past 90 days, they are still inadequate. Medical care, food distribution, and other community facilities are adequate.

1/ Industrial plants and plant sites to be disposed of by Defense Plant Corp.:
Studebaker Corp.
(1) Test track, testing, mechanized equipment; Acres 890; Buildings, 33,120 sq. ft.
(2) Product, lathes, grinders, presses, milling machines, drills, furnace ovens; Acres 318.75; Buildings 1,453,355 sq. ft.
Bendix Aviation Corp.
(1) Product, aircraft carburetors; Acres, 29; Buildings 147,200 sq. ft.
(2) Product, aircraft and other carburetors, aircraft landing gears; Acres, 6.264; Buildings 164,705 sq. ft.
(3) Product, turrets for airplanes; Acres 4.573; Buildings 164,705 sq. ft.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Miss Frieda Miller, Director May 27, 1946

Martha J. Ziegler

Special Report on Recent Visits
to Evansville, Indiana

Attention: Mrs. Nason, Miss Williams, and
Miss Bagwell

NOT FOR PUBLICATION

For the past few years the Women's Bureau has collected material on Evansville, Indiana. During the ~~past few~~ years Evansville has appeared to be suffering most of the time either from a scarcity of labor or a surplus of labor. You will probably remember that Ethel Erickson and Jennie Mohr spent a week or two in Evansville in February, 1943. They visited a number of firms and wrote reports of these visits. Also I believe a general report summarizing the employment situation in the community was written.

Later May Bagwell spent some time in Evansville interviewing Union leaders while a special survey concerning Women in Unions was being made.

Also, of course, Mary White of the War Production Board and I made a special trip to Evansville in the fall of 1944 ~~and~~ at the request of the UAW Local for the Chrysler plant. A question had arisen about the possibility of employing women who had worked in the Small Arms Ammunition plant for work repairing tanks. Various reports concerning this visit were sent to the Bureau in October of 1944.

In August, 1945 I returned to Evansville again. Miss Peters, General Secretary of the Y.W.C.A., called together women from various clubs to discuss the possibilities of working out a joint program of action on women's employment problems. During this visit I also talked with the president of the Chrysler Union who gave me a brief report of recent developments at that plant with respect to women's employment. (See memorandum of August 8, 1945 marked to the attention of Miss Bagwell and Mrs. Nyswander).

When I was in Evansville in August 1945 the Area Director of the War Manpower Commission and other people indicated that the community would probably be faced with a very serious unemployment problem if the war should end suddenly. Within a few weeks the war did end quite suddenly. Labor Market Development Reports and other reports received about Evansville seemed to indicate that it might have a more serious situation than most areas in my region. During the fall Miss Peters and her group appointed some committees, conducted job clinics, and tried to carry on a few preliminary activities. You will probably remember that we discussed Evansville when I was in Washington early in December and decided that it would be a good idea for me to go there, when possible, to make some first-hand study of the situation.

For one reason and another it was the middle of April before I was able to go to Evansville, but perhaps that was just as well since even at that time the situation was confused and it was difficult to reach any very definite conclusions.

General Employment Situation

I obtained material from the Labor Market Development Reports for January and March 1946 and from various issues of the U. S. Labor Market Letter for Indiana. This material was supplemented by interviewing the manager of the local Employment Service office in Evansville and by talking with other employees of U.S.E.S. (Some material obtained on a one-day visit to Evansville in May of this year has already been sent to Miss Williams in a report on Employment Office Services to Women.)

While it would not be desirable to repeat here a great mass of material from the Labor Market Development Reports, a few statements from these reports will perhaps indicate the nature of the problem. The L.M.D.R. for January, 1946 states that comparable data for 29 Evansville firms show a total employment decline of about 30,500 from January 1945 to January 1946. During the same period women's employment dropped 9500 in these firms. This drop meant a total decline in employment of 61 per cent in these firms during the year and a drop of 67 per cent in female employment.

Also one must remember that there were some layoffs of significant size, especially as far as women's employment was concerned, long before January 1945. The outstanding example of this was the Small Arms Ammunition plant operated for the government by the Chrysler Corporation. Peak employment at this plant was in the summer of 1943 when there were 12,492 employees of whom 5400 were women. On September 25, 1944 total employment at Chrysler had dropped to 2,886 with 428 women. Later on employment did increase somewhat but was only a comparatively small proportion of the peak employment. In January 1946 there were no employees at all in the Ordnance plant and the reconverting auto plant had 361 employees including 44 women.

Between January and March 1946 there was another decline in manufacturing employment though an increase had been hoped for. For example the March 1946 Labor Market Letter for Indiana indicates a drop of over 6 per cent in employment between January and March for 21 establishments. During the same period there was a drop of 14.5 per cent in women's employment in these establishments. No doubt this drop in employment was due in part to material shortages. For example the workers at the Seeger-Sunbeam plant were laid off due to lack of parts from the General Electric Company. They were being called back to work at the time of my visit.

The March L.M.D.R. considers the employment outlook for the coming months somewhat more favorable. However unemployment is estimated at 10,000 to 12,000. Also the report states that there is nothing in the current predictions to indicate that full employment in this area will be reached within the next six months. In addition to the Small Arms Ammunition plant, which is not being used at all, the Shipyard disappeared entirely from the Evansville scene since the end of the war. The Republic Aviation plant, another

plant which was owned by the Government, has also ceased operating entirely. However this plant has been leased or bought from the Government by the International Harvester Company. Eventually it is expected to employ several thousand persons but Mr. Richter, the local Employment Manager, does not expect this plant to be employing many workers within the next six months. Despite the great loss in employment and in opportunities for employment which this community has obviously had, a good many of the persons interviewed did not seem to be particularly concerned about the fact. Opinions varied a great deal depending on the persons interviewed. [redacted] persons unconcerned
Their reasons might be summarized briefly as follows:

1) A large proportion of the war workers in Evansville were not residents of the city but were people who commuted from various places covering a wide area in Indiana and Kentucky. It is believed that most of these people have returned to their own communities and hence are not considered problems in Evansville.

2) A number of cutbacks occurred in Evansville a year or more before the end of the war. Therefore some of the surplus workers went elsewhere and obtained jobs before the end of the war.

3) Many, if not most women, who worked in Evansville during the war were housewives who do not want to work now. As elsewhere one was told that a large proportion of the women who registered at U.S.E.S. were primarily interested in obtaining unemployment compensation and were withdrawing from the labor market as benefits became exhausted.

Perhaps some indication of this feeling about women was given in the report sent to Miss Williams after my interview with Mrs. Marstal of the Local U.S.E.S. staff. Mrs. Marstal indicated that there has been a great decline in the number of women counted in local office traffic in the last few months. Also total office traffic is declining.

The representative of the Indiana Employment Security Board stationed in Evansville seemed to have a particularly bitter feeling toward the applicants for unemployment insurance, and especially toward the women. He assured me that he knows most of the women do not want to work. You may know that the conflict over administration of unemployment insurance in Indiana broke out very early in Evansville due to the early cutbacks at the Small Arms Ammunition plant. There has been a great deal of publicity over difficulties in Evansville. Also I was told that since the end of the war there has been at times a great commotion in Evansville over unemployment compensation. One of the difficulties was that the benefit checks were very late in being distributed. Several persons who should know reported that sometimes 9, 10, or even 14 weeks passed before the first checks were received even when a claim was considered valid. Apparently some people blamed the slowness on the Federal Government and others blamed it on the State. At any rate at one time some of the unions were picketing the local Employment Security office, asking for the removal of the local representative, (or so I was told by various people in the city.)

Mr.Ross,the Evansville representative of the Indiana Employment Security Board,said that he could not give any information as to the number of applicants whose claims have become exhausted within the past few months.(Since my return from Evansville I have found out through correspondence with the state office in Indianapolis that some kind of a report concerning the exhaustion of benefit claims in Indiana is in preparation.The state office has promised to send me a copy of this report when it is available).

Weekly reports which are issued by the Employment Security Division indicate that the claims traffic figures in Evansville have been on the decline recently. However it is difficult to tell how much of the reduction in office traffic is due to the exhaustion of benefit claims.I had thought that by the time I reached Evansville many of the workers laid off at the end of hostilities would have exhausted their claims if they had had no work in the meantime.I thought that perhaps it might be possible,then,to get some estimate as to the number of women remaining in the labor market.However the situation still seemed a bit confused and Mr.Richter,local manager of the U.S.E.S., told me that it would be several more months before he would feel able to make a definite statement as to the employment situation as a whole.

(It may be that the delay in the payment of unemployment compensation has been one factor contributing to the uncertainty as to the number of persons actively seeking work)

Mr.Richter did indicate that he is not especially optimistic about the Evansville employment picture and he said that wages being offered for certain types of work have begun to go down.For example the wages being offered now for women office workers are considerably lower than they were a year ~~or two~~ ago.

A few of the people with whom I talked seemed deeply concerned about the scarcity of jobs in Evansville and the effects which this will probably have upon the community in months to come.One evening I talked for several ~~hours~~ with Miss Smydal, a young woman who works at U.S.E.S.Miss Smydal was one of the women who worked on the committees set up by Miss Peters and other representatives of women's groups last fall.(Her comments should be regarded as extremely confidential)Miss Smydal expressed concern about the number of women she has been interviewing for whom no work can be found.She mentioned one or two recent instances in which she had been unable to suggest anything to a woman who seemed to need a job desperately.Miss Smydal talked particularly about the problems of women who have been divorced or separated from their husbands during recent years and who have children whom they must support.Some other persons in the community also talked about the women who have financial problems due to wartime divorces,separations,and casualties.This problem seemed to be recognized,in fact by a number of different people interviewed.

Negro Employment

At the time of the 1940 census Vanderburgh County(in which Evansville is located) had 7560 Negroes and they constituted 5.7% of the population.Mr.William Smith,Jr.,director of the Carver Community Organization,believes that the number of Negroes in Evansville increased substantially during the war years.He estimates that there are probably about 10,000 Negroes there now.A good many of the young Negro men and women leave Evansville,according to Mr.Smith,and go to cities like Chicago and Detroit.However there is a constant influx of Negroes from the southern states.

Many of these Negroes have had very little opportunity to get training for jobs and the training facilities in Evansville are also very limited.(There is segregation in the school system and according to various reports Negroes are not admitted to the Mechanical Arts High School)

Previous Women's Bureau reports on Evansville mentioned the fact that Negro men and women were given employment at the Chrysler Ordnance Plant during the war. A number of persons have indicated to me that this was the outstanding example of the utilization of Negroes in Evansville during the war.Since the end of the war there are apparently practically no job openings in Evansville for Negro women except in domestic service and in other types of service occupations.

Mr.Smith gave me a copy of a report on Negro Employment in Evansville which was prepared by Charles E.Rochelle sometime since the reconversion period began.This report is undated and I have written to Mr.Smith to inquire when the material was collected.Also I have inquired whether I may keep this report(in which case I shall send it to Washington) or whether he needs to have it returned.

This report gives some figures concerning Negro employment before the war,during the war,and since the war.Among other things a report is given of a survey made of employment in 414 Negro families whose children attend the Lincoln School.This is a report of employment since the end of the war,but unfortunately the date of the survey is not indicated.At the time it was made,110 or 24.2% of the fathers of the children were employed; 122 or 33.9% of the mothers were employed;46 or 11.1% of the families were supported solely by the mothers;76 or 18.4% had both the mother and father employed. In 50,or 12.1% of the families neither mother nor father were employed.Forty of the families were receiving relief from a township trustee or the department of public welfare.

Relief Agencies

Despite the tendency(which seemed to be rather prevalent) to be optimistic about employment problems in Evansville,brief inquiries from some of the community welfare agencies indicated that their probelms have been increasing in recent months.The head of the Family and Children's Service Bureau,a private agency,referred me to the township trustee of Pigeon Township.Public "relief" is administered by township trustees,and their deputies.There are eight townships within Vanderburgh County but the largest part of Evansville is within Pigeon township.I talked with Mr. Burns, chief deputy to Mr.Peters.the trustee.At first he said that the problems of the township had become less acute than they were last fall since many of the stranded war workers had been helped to get back to the communities in Kentucky and other states from which they had come.(In Indiana a person must have resided in the state 3 years and in the township 1 year to be eligible for assistance but it evidently is possible to supply funds to return people to communities in which they formerly resided).

However when Mr.Burns began checking figures and talking with others in the office it was found that the number of "cases" has been climbing quite rapidly in recent months.One person,when asked about the peak time since the end of the war,said "It is right now."In January ,1946 Pigeon township reported 796 active cases;in February 876 cases;and in March(the last month for which figures were complete) there were 974 cases.Thus there had been an increase of 98 cases in the last month.

Mr. Burns then indicated that the"bulk of" the applicants to his office are women(though he gave no specific figures) and he said some of them had been employed

formerly in war industries. Mr. Burns also said that a good many of the women coming to the office are women whose husbands have deserted them, disappeared, etc. (He also stated that since he formerly was head of a manufacturing establishment he has been able to find jobs for hundreds of people through his personal contacts with employers. He obviously has a rather poor opinion of U.S.E.S.-and federal agencies in general)

Miss Fisher, head of the County Department of Public Welfare, also reported that the number of applications for assistance has gone up considerably during recent months. Her agency administers aid to dependent children, aid to the blind, and old age assistance. Thus far the applications for old age assistance are the ones which are particularly on the increase. While these old people were not employed, generally speaking in the Evansville war industries, some of them were in other jobs from which they were displaced as younger workers became available. Also Miss Fisher believes that some of the old people have applied for assistance because some of the relatives who were able to support them during the war no longer feel able to do so.

Child Care Facilities

During the latter war years Evansville had 3 child care centers for white children (two of which were in housing projects) and 1 for Negro children. Also there were a number of units of "extended school services." Lanham act contributions to these facilities expired Feb. 28 of this year and it was impossible to get any other community funds to carry on services. Miss Dorothy Russell, an employee of the Board of Education, and some others in the community felt there was a need for child care services of some type. At the time of my visit to Evansville two nursery schools for children from 2 through 5 years of age were still operating.

The school for white children is in a basement room of the Central High School. The school board is giving the use of this space at present but Miss Russell doubts whether it can be used after school begins next fall. The center for Negro children is in a permanent housing project for Negroes.

All expenses of the nurseries, except the space being used, must be paid out of fees collected from the mothers or by private gifts. At present the fee is $5 per week. At the time of my visit 52 children were enrolled in the nursery for white children. Miss Rusell said that the average attendance is about 40,-which is really too large a number for the space now available.

Miss Russell said that there are about 20 Negro children in the other nursery but it is difficult to keep that nursery functioning since many of the mothers really cannot afford to pay the $5.00 fee.

I visited the school for white children early one morning when many of the children were arriving with their mothers (since that was the only time that Miss Russell had time to talk with me) Several of the women brought two children. (Ten dollars a week for child care would certainly constitute a major item of the budget for the average working woman in Evansville, I should think.) Miss Russell looked over her file of cards to give me some idea of the types of work being done by the mothers of these children. More seemed to be employed in stores than in any other one type of establishment. Some were office workers and at least five or six were working in factories.

Postwar Employment Survey

The Chamber of Commerce referred me to Mr.Kneise of the Manufacturer's and Employer's Association for additional information concerning the survey made in Evansville a year or two previously concerning postwar employment.This survey,a copy of which was sent to the Bureau,I believe,indicated that a good many workers in some of the major war plants thought they would want to remain in the community after the war and would want to continue in industrial employment.Persons w/riting the report indicated that they did not believe all of these workers could be used by Evansville industries after the war.

Mr.Kneise said that no additional "follow-up" surveys have been made in Evansville.He had very little information to give but thought that probably a good many of the war workers have left.He complained somewhat over the restrictions placed on commercial and industrial building,saying that there are no facilities available in Evansville in which additional industries could be housed.

Reports of Firm Visits

Attached are reports of brief visits made to two of the leading industries in Evansville which employed women for production work prior to the war and are employing some women now.These reports are for the Servel Co.,which is the largest employer in Evansville,and the Seeger-Sunbeam Corp.Both firms make refrigerators, and this is one of the leading Evansville industries.(Only four copies of these reports were made for the Washington office,since these reports were finished before the memo.about 8 copies was received)

Union Activities and Women's Employment

The report for the Seeger-Sunbeam Corp. indicates that an attempt is being made to consider women's seniority rights within the terms of the union agreement,although women are not being re-employed as readily as are men.However I believe that the co. and the union are endeavoring to give consideration to women's seniority rights.

The U.E.R.& M.W.A. has had a very long struggle to gain recognition at the Servel Co.In fact Alice Smith of the Chicago office of U.E. reported that the organizing campaign has been going on for about 9 years.Recently the union did win an election but negotiations with the company had not come at the time of my visit.Therefore there is no union contract governing re-hiring,seniority rights, etc.From the remarks of Mr.Taggart of the Servel Co. and from U.E.R.& M.W. reports this co. has been hiring veterans who were never before employed by the company.It seems likely therefore that some women are being replaced who might otherwise be re-called.

In addition to these two firms,U.E.R.& M.W.reports indicate that the Hoosier-Cardinal Corp.,which makes small parts for refrigerators and automobiles,also uses a significant number of women.However U.E.R.& M.W. reports do not expect women to be employed in production jobs to any great extent at the Briggs Co.,another major plant, and not at all for production work at the Chrysler plant,since women were not used for such work there prior to the war.I talked briefly with Walter Hayden,editor of the local C.I.O. paper and a member of the U.A.W. with whom I talked on a previous visit to Evansville.He seemed to think that there is a possibility that some women will be re-hired eventually in the Chrysler plant because of the seniority provisions of the union contract and the national policies of U.A.W. with respect to seniority.Mr.Hayden believed that the matter would depend largely upon the Supreme Court's decision with respect to super-seniority for veterans. Since the Court has now decided against super-seniority,I presume Mr.Hayden would think some women have a chance for re-employment.However I think that he was also considering the possibility of a much larger employment at the Chrysler plant than before the war and whether this will develop

is still problematical.(Miss Smydal,for one,is skeptical as to whether the major Evansville employers will need as many workers as they are estimating the will need eventually.Certainly during the war there seemed to be a rather general tendency for employers to over-estimate their future needs.Also,of course,Evansville employers have not been expanding their employment in the past few months as they had predicted but material shortages,strikes elsewhere,etc.,no doubt contributed to this failure to expand).

General Conclusions and Comments

This is a rather sketchy and disjointed report of my observations in Evansville.More material could be included but it seems best to get something completed now,if ever.

I cannot help feeling that the community has some serious problems or will have within coming months.While it is doubtless true that the traffic at U.S.E.S. has fallen off greatly in recent months, it is also true that on April 1,according to figures given by Miss Marstal,there were 9510 active applications on file,including 1920 of women, and 589 openings.Comparatively speaking there were more openings for women,since 321 of them were for women.(Most of these of course were in trade and service or low-paying,unskilled manufacturing jobs).Also according to figures previously reported to the Bureau concerning U.S.E.S. services to women in Evansville 310 of the placements made during April were women.Therefore jobs for returning veterans is probably going to be considered the major problem of the community for some time to come.

The group which Miss Peters called together last fall evidently did not function to any extent after the job clinics were held.Miss Peters indicated that, generally speaking,women's organizations did not take much interest in the problem of women's employment.Miss Smydal also indicated to me that one of the problems which developed at the job clinics and job guidance discussions was that so few job opportunities of any kind were open in the community.

This community would probably be worth watching during the next few months to see what happens.Certainly the opportunities seem limited even if the new International Harvester plant does absorb several thousand of the unemployed. Furthermore not all of the veterans are back and there are some people in the community who believe the permanent population of the community has increased greatly as a result of the war.Several housing projects built during the war are still in Evansville and are apparently fully occupied.Miss Smydal said that at the time the women's committee was considering surveys she had thought it would be a good idea to get statistics from the public utilities as to the number of customers they now have as compared to the peak war years and pre-war years.She,for one,beleieves that there are a good many war workers who are at least attempting to remain in Evansville.

Certainly there is a rather widespread impression in the community that most of the women who came into the labor market during the war do not need jobs now. Probably surveys as to the drop in employment,the number of applications on file at U.S.E.S.,etc.would make little impression upon those who are convinced that women's employment is not a problem.If some way could be found to get the stories of individual women and what is happening to them,that probably would be the most effective kind of information to have.But of course this is just the type of information which it is difficult to get,especially without spending a great deal of time (and money).

Miss Frieda Miller, Director April 30, 1946

Martha J. Ziegler

General Information on U. S. Employment
Office Services to Women

NOT FOR PUBLICATION

Attention: Mrs. Mason and Miss Williams

I shall try to get some information for Miss Williams from the Chicago office of U.S.E.S. before May 15. I am sorry that I did not get very much information that will be helpful in relation to this memorandum when I was in Evansville. However I may have an opportunity to call at the Employment Service again next week since I may have a few spare hours in Evansville.

During the past few months I have made inquiries at various state and local offices of U.S.E.S. Most of this has not been reported to Miss Williams, partly because of lack of time but mainly because there seemed nothing very significant to report.

You may remember that in my report of a visit to the Fort Wayne Employment office a few months ago I indicated that the local manager did not consider the "active file" complete or up-to-date. I certainly gained the impression there that not all of the men, or women, who came to the office were being registered in a file.

The Evansville report is still in process of writing little by little. However Mr. Richter, the manager there, said that he began taking complete applications for all people registered in the Evansville office as long ago as last December. He indicated that all U.S.E.S. offices were ordered to begin setting up files of applicants by March 16, 1946. Mr. Richter also said that these files are supposed to be gone over every sixty days and the names of persons who have not been in the office for sixty days are supposed to be removed. At the time I was in the Evansville office Mr. Richter said that a new file count was being taken. I offered to come back several days later for the information but he did not seem to think it would be available while I was still in town. He said the information will appear in the Demand-Supply Supplement for May. However I am planning to write Mr. Richter and ask him for an appointment during my Evansville visit next week.

Mr. Richter did say that the Evansville office had 860 new applications from women during February and 3700 new applications from men. During the same month there were 682 referrals of women and 734 referrals of men. However Mr. Richter does not think figures on referrals mean very much since the same persons may be referred to a number of possible jobs during one month.

On my last visit to Indianapolis I talked with Mr. Gross, head of Reports and Analysis in the Indiana State Office of U.S.E.S. I asked him about active files and whether the State Employment Service has any figures which indicate the number of men and women who are actively looking for jobs. Mr. Gross said that he does not think very much reliable information is available as to the actual number of people who want and need jobs. Even where there are active files, these may not mean very much. A good many of the people registered in the files may already have obtained jobs.

Of course it seems to me that the main difficulty in getting information currently from the Employment Service as to the number of women registered for jobs and wanting jobs is the fact that people must register with the Employment Service to obtain unemployment insurance. A good many representatives of the Employment Service with whom I have talked seem fairly certain that a good many people, especially women, will no longer come to the office when unemployment insurance benefits are exhausted. It seems to me that in many instances such benefits may actually have been exhausted by now but I have never been able to get any figures specifically on this point. However I am going to write to the Indiana State office about this.

I did learn, incidentally, that in Evansville at least payments of unemployment insurance benefits were delayed. I heard stories from various sources indicating that sometimes persons had to wait 8, 9, or 10 weeks before receiving any checks, though possibly they received two or three checks at the time the first ones came. Apparently there are various explanations given, but probably the difficulty was due in part to lack of staff and to lack of machinery for handling a large problem which arose suddenly.

I shall try to go into the problem of Evansville more fully in the report but I have felt quite baffled generally about getting any figures from U.S.E.S. local offices which would indicate to any extent the number of "unemployed" in the community.

During my travels I have made some general inquiries concerning counseling services for women. People in the regional office of Reports and Analysis have indicated that counseling services of any type were very slow in getting started in this region, which includes Illinois, Indiana, and Wisconsin. Mr. Gross said that in Indiana there was a lot of disagreement at first within the Employment Service. Some persons wanted a separate counseling service for veterans. Others wanted to establish counseling services for all workers in all local offices. Only three offices in Indiana, Indianapolis, South Bend, and Evansville, have counseling services as such. It is expected that eventually such services will be open in other offices and personnel in some other offices have had some training.

My general impression from talking with several people around Indiana Employment offices is that the counseling services where they exist, are supposed to be open to everyone but that for various reasons most of the counseling service is given to veterans. Up until a couple of months ago it was probably used almost exclusively by veterans. This emphasis on counseling veterans, I believe, has been due primarily to the fact that there are large numbers of veterans to be served and only a few counselors available in most offices. (I have an idea that this may be true in the entire region and not just in the three Indiana offices).

In Evansville Mr. Richter said that the counseling service is open to everyone but "due to the structure of the files" the majority of the persons receiving counseling are probably male veterans. However the week preceding my visit to Evansville one woman in the office who handles "unusual cases" had given some special services to 42 men and 3 women.

Perhaps I never reported all of the details of my last visit to Wisconsin in January. I did consult Mr. McRavey in the State U.S.E.S. in Madison (Reports and Analysis Division). He knew of no actual counseling services, as the formal program is supposed to be set up, except in Milwaukee. Next day I did talk with Mr. John H. Solsrud, who is head of the counseling services in the Milwaukee office of the Employment Services. There are three counselors in this office, and two of them were women at the time of my visit. However one of the women was leaving. One of the counselors spends a lot of her time giving aptitude tests. Mr. Solsrud said that he is endeavoring to get all of the personnel of the office to refer people to the counseling service. In addition to giving aptitude tests and interviewing people carefully a number of times, the counselors may consult school records. Sometimes I believe the I.Q. tests are included in school records. The counselors would refer persons counseled back to the regular placement officers of the Employment Service for any job placement attempted. Some persons coming to the counseling service are referred to other educational and social agencies available in the community. For example people are frequently referred to the Jewish Vocational Service for educational counseling.

Mr. Solsrud said that until recently no records have been kept as to the number of persons receiving counseling services. The Milwaukee service was established in the spring of 1945. Mr. Salsrud estimated that probably a thousand persons had been given some service by the time I talked with him last January. At that time he estimated the counselors were seeing 100 to 150 persons a week but not all of these people are new to the counselors. A good many are re-interviewed a number of times. On January 1, 1946 a tally sheet was started. By January 9th 66 new persons had been interviewed but all of these were men. During the same period 92 people were re-interviewed and 6 of these were women. Mr. Solsrud indicated that women have not constituted a very large proportion of the counseling cases but there have been some.

He mentioned a deaf girl who made four visits to the Service and was given some tests. Eventually she was placed in a domestic service job. Of course at the time I talked with Mr. Richter and Mr. Gross in Indiana and with the men in Wisconsin, I had nothing very specific in mind. I doubt whether any of them would want to be quoted directly in any report to the I.L.O. As was implied, I believe, in the memorandum there is sometimes a time lag in carrying out national policies on the local level. When I go back to Evansville I shall mention the specific request we have received and then can probably judge whether any material may be quoted directly from the Evansville office or whether it should be used merely in summarizing general trends.

When I go to the Chicago U.S.E.S. I can of course be more specific. Would you like to get actual figures from some local offices which can be quoted in a report to the I.L.O. or do you merely wish this material as added "background" information to help in evaluating the effectiveness of current U.S.E.S. policies in relation to women's employment?

Because I feel that some of the men mentioned in this report were speaking confidentially and quite frankly to a fellow member of the Department of Labor, I have marked this material as <u>Not For Publication</u>. However it is probably of no particular value to you anyway except as a general indication of the type of comment and report I have been getting from various local offices of U.S.E.S.

Enclosed with these comments are two copies of the recent Labor Market Trends for Illinois which may be of some interest to you. As indicated, the second copy enclosed has reports for several areas missing. Two copies of a separate, special report on manufacturing employment in Illinois are also being sent to you. You will find some comments on the employment of women on pages 3 to 5.

I am also enclosing several copies of a letter received from Olive Riddell of the Duluth YWCA in answer to a letter I wrote her inquiring about household employment. Miss Riddell very kindly sent me a copy of a recent Duluth Labor Market Report which does have some interesting figures concerning women. Quite a long time ago I wrote to the Minnesota Employment Service asking to be placed on the mailing list for material of this type and received a reply indicating that my name would be placed on the list. However nothing has come in the intervening months and so I shall try to see someone in the Employment Service when I get to St. Paul sometime in May.

Confidentially I am personally a little disturbed about the number of comments and reports from the U.S.E.S. state and local offices indicating that it is believed a very high proportion of the women registering for jobs will evaporate as soon as the unemployment benefits are exhausted. I am still a little skeptical about this.

MJZ:HW
Enclosures

CONFIDENTIAL

U.S.DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON
D.C.

Firm Interview

Agent M.J.Z.

Date April 12, 1946

1. Name of Firm Seeger-Sunbeam Corp. Address Evansville, Indiana

2. Interviewed A. E. Apple Position Industrial Relations Director

3. Products:

Present — Cold Spot Refrigerators
(These are sold by Sears, Roebuck & Co.)

War — Company made a variety of ordnance products, such as .45 caliber cartridge cases, shell boosters, rifle grenades, and ammunition containers.

Pre War — Cold Spot Refrigerators.

4. Employment

a. Present

	Total	Men	Women
Total	1458	1077	381
Plant	1058	837	221
Office	400	240	160
Other	(No separate classification of "other" employees obtained).		

b. Approximate number

War peak, date March, 1943

Total 3806 Men 2364 Women 1442

(These figures taken from L.M.D.R. of U.S.E.S. for Jan. 1946)

c. Prewar (1940)

Total 3000 Women constituted 20 to 25% of total.

d. Anticipated normal employment in postwar period, date: Spring of 1946

Total 3,000 Men N.A. Women N.A.

NOTE: During reconversion period this plant was able to keep a fair number of its employees working and in January 1946 had 1300 employed. Due to shortage of parts (because of the G.E. strike for one reason) one part of the plant was shut down Jan. 18 and much of the rest of it closed

in February. The March, 1946, L.M.D.R. of U.S.E.S. showed only 724 employees, including 161 women. Company began calling workers back on March 25 and had reached figure shown for present employment shortly before my visit.

5. Plant Jobs Employing Significant Numbers of Women:

a. Present jobs, specify: Attached to the report is a copy of the agreement between this company and Local 813 of the U.E.R.M.W.A.-C.I.O. At the back of this agreement is an addendum to it which gives job titles by groups. Some information was obtained from Mr. Apple and Mr. Wright, president of the Union, as to typical jobs on which women are employed. Some comments have been written in the margins of this addendum. However only fragramentary information concerning the actual jobs (by title and number) was obtained. Mr. Apple gave me a copy of the agreement but unfortunately I did not have time to study it in any detail before leaving the office. I did not discover the lists of jobs until later but had obtained a little general information about jobs for women from Mr. Apple. Mr. Wright gave me some additional information when I saw him. Some of the principal types of jobs for women are as follows:

Machine Operating Women operate a number of machine tools, such as engine lathes, drill presses, broaching machines, small turret lathes, and milling machines.

Mr. Apple said that some women operating machines sharpen their own tools and may make minor adjustments but that none are doing setwup work as yet.

Motor Operations: The work in winding and assembling electric motors is done predominately by women. Motor winding, done entirely by women, is considered a rather specialized job, requiring people with a definite aptitude for the work.

As indicated under group 9 on the job list, women also do assembly work on the motors, such as cutting and assembling cords, assembling stator frames, etc.

Some women also bend copper tubing.

Inspection Women do many types of inspecting. Practically all receiving inspection is done by women. They also do in-process inspection on small parts. Some inspection jobs require merely ~~physical~~ visual inspection. Others require the use of fixed gauges or instruments.

Sub-Assembly Women do various types of assembly jobs on small parts for the refrigerators.

Final Assembly Jobs Women do some jobs along a final assembly line, such as cleaning the interiors of the refrigerators. However more women are used on sub-assemblies.

"Brushing Off" —— Brushing off the enamel from the edges of refrigerators (this is done in the Porcelain Department.)

←—————— Silver Soldering.

Firm Interview — Seeger-Sunbeam Corp.

5. (Continued)

Stock Room Jobs Some women act as stock selectors and others are checkers. Also women are used exclusively in the Central Parts Department where spare parts are packed to be sent to Sears, Roebuck & Company.

A few other types of jobs for women are indicated in the attached addendum.

B. New Jobs for Women during the War, specify: Many of the jobs for women during the war were of a very different type from the ones they are doing now. During the war the company made many small metal objects such as shell boosters, and cases for small arms ammunition. Many of the women operated special automatic machines or did inspection using fixed gauges or other equipment. At many of the jobs women could sit down.

However Mr. Apple said that during the war women began for the first time to operate machines in this company. Some of this type of work for women has carried over into peace time so that now women are operating different types of machine tools.

C. Additional job openings for women in the next 6 months:

1) In general expanded employment of women will be on the same types of jobs they are now doing.

2) New kinds of work: Mr. Apple did not indicate that he expects women to be used on any new kinds of work, at least in the near future.

D. Comment on changes in products, methods, etc. As indicated in Part B above, the types of work for women have changed greatly since the end of the war because of the difference in products being made. Mr. Apple said that older women (women above 55) are a problem since some of them were hired during the war to do light work at which they could sit down. The same types of work are no longer available. As will be indicated later, men have been called back at a more rapid rate than have women. This is due in part to the fact that jobs have changed.

6. Rates and Methods of Pay

a. Minimum entrance rate inexperienced workers

	Women		Men	
	Factory	Clerical	Factory	Clerical
Rate	.81	$130.00 Mo.	.81	
Job	See below	Mail Clerk	See below	

Wage rates by jobs ~~were~~ are given in another addendum attached to the Union Agreement. However 18¢ should be added to each rate shown since 18¢ raised agreed to between the company and the Union had been approved by the Wage Stabilization Board shortly before my visit to the plant. On pages 6 and 7

Firm Interview — Seeger-Sunbeam Corp.

6. (Cont.)

of the job classification sheets is a list of factory jobs which pay the minimum rate. Therefore the starting rate for men and women factory operatives now is 81¢. After 4 weeks the rate is 88¢. (~~Mr. Apple did not indicate how much often increases thereafter have been on other rates paid for previous jobs at the end of 4 weeks and 8 weeks.~~)

h. Highest paid job for women in plant Mr. Wright of the Union said that the highest paid jobs for women would pay, according to the new rates, $1.20 an hour at the maximum rates for the job. He indicated that this would be a turret lathe operating job.

Mr. Apple gave the highest rate for women as $1.12 per hour based on the new rates. He also said that this would be a turret lathe operating job.

Clerical Force Head Stenographer - $230.00 per month.

Administrative Force Mr. Apple said that there are no women supervisors or administrators. In addition to the Head Stenographer there are a few women listed as Chief Clerks at about $195.00 per month.

7. Hours of Work for Women

a. Daily 8 Weekly 40 Days per week 5

In general the 5 day, 40 hour week is the goal toward which the company is working. However at the time of the visit, hours were probably somewhat irregular.

b. Lunch period 1/2 Hour Paid for No Rest Period Smoking Period
length 5 Minutes No. 1

c. Hours same for men and women: Yes

Before the war 90% of the productive workers were under individual or group incentive plans. The company is gradually going back to the prewar system. (No information as to what it was during the war.) Incidentally Mr. Apple said that incentive wage payments are related to the old base rate on jobs and then the 18¢ per hour increase is added. For example, on a job listed on the attached sheet with a starting rate of 70¢, a worker's earnings per hour would be computed by adding any incentive ~~payment~~ earnings per hour to 70¢ and then adding the 18¢ increase. The incentives, which are percentages, are therefore related to the former base rates.

d. If women are employed on night shifts, etc. Mr. Apple indicated that normally the company would use some women on the second shift, though I am not sure as to the exact situation at the time of the visit. The company was just getting operations underway again after a layoff.

However in general Mr. Apple was not worried about the possibility of needing to employ women after midnight. This company does not endeavor to keep its porcelain department operating continuously. (See report for the Servel Co.)

During the periods of the year when the company can operate 5 days per week on two 8-hour shifts, Mr. Apple does not foresee any difficulties arising because

of the Indiana Night Work Law for Women. While operating 5 days per week the company may employ women until midnight under the Law and Mr. Apple believes this would be sufficient. However Mr. Apple believes that for at least three months in the year the company will probably need to work on a 6-day-per-week schedule. This would make it impossible to employ women until midnight under the Night Work Law.

e. Changes in Hours since end of war work

During the war the usual schedule was 6 days and 48 hours per week.

8. Hiring Specifications for Women:

Mr. Apple made the general comment that hiring specifications in the future will be "tough," but he did not elaborate on this very much when additional questions were asked.

a. Age, minimum No specific information. Maximum: While Mr. Apple would not say that there will be a maximum age for new employees, he did indicate that he considers the women over 55 who were hired for warwork as one of his problems. Same for men and women: No specific information.

b. Schooling, minimum required. There are no set educational requirements.

c. Marital Status - No discrimination against married women.

d. Race No Negro women on office or productive jobs. May be used for cleaning, etc.

e. Other - Pre-employment physical examinations for women are not extensive. The company is chiefly interested in being sure that they have a fairly high degree of finger dexiterity.

Actually the plant is not hiring any new employees at the present time but is calling back people who have seniority under the seniority agreement. (For details as to the seniority system, see the attached Union Agreement.) However ability to do the job is given weight with seniority; also there are occupational groups. Since the type of work has changed and since greater versatility is needed in starting up normal production again, men have been rehired at a faster rate than women. For example all men originally hired by July 1944 have been recalled. Only women hired by January 1943 have as yet been recalled. The greatest bulk of laid-off workers still on the seniority list are women. Under Union Agreement a person will be carried on the seniority list for two years if employed by the company for two years. Persons employed one year will be kept on the list for six months.

9. Training: - Apparently most training given by the company is on-the-job training. Mr. Apple mentioned motor winding as the job for women for which special training is generally required. This would be given by instructors or supervisors who are blending to take jobs after three months of training.

10. Organized Yes Name of Union affiliation U.E.R.&M.W.A.-C.I.O. Local 813. Copy of Union Contract is attached.

Note particularly. The agreement with the Union concerning maternity leave. Mr. Apple mentioned this specifically; seems quite proud of it. He indicated it has been in the contract for several years. The company also has a general policy

Seeger-Sunbeam Corp.

Firm interview

of asking women who are pregnant to take leave after three months of pregnancy.

BEST AVAILABLE COPY

CONFIDENTIAL

Firm Interview

U.S.DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON
D.C.

Agent Martha Ziegler
Date April 11, 1946

1. Name of Firm Servel, Inc. Address 119 N. Morton, Evansville, Ind.

2. Interviewed Frank Taggart Position Special Assignments and Public Relations

(Some information from U.S.E.S. is also included, as indicated)

3. Products: Present "Refrigeration" One of main products is the Electrolux Refrigerator. Company is also beginning production of air-conditioning units, which will provide cool air in summer and heat in winter. Also planning production of water heaters.

War Heating and refrigerating units for armed forces; seamless steel tubing, aeroplane wings, ammunition boxes, land mines, and other miscellaneous ordnance material.

Pre-War Refrigerators (and probably some other products similar to those being produced at present).

4. Employment: a. Present

Mr. Taggart gave the following figures for employment as of 3/31/46:

	Total	Men	Women
Total	6004	5022	982
Direct Labor	3092	2608	484*
Indirect Labor	2912	2414	498**

These figures include some employees in New York and Chicago sales offices and perhaps a few other people working outside of the main offices and plant in Evansville. Mr. Taggart gave total Evansville personnel as approximately 5600. (U.S.E.S. report gives total employment of 5962 as of middle of March and 980 women, and so U.S.E.S. was evidently given figures for the entire personnel of the company.)

*Inspectors are included in direct labor. There are 24 women doing inspecting.

** This figure includes plant clerical workers (about 75) as well as office workers, nurses, cleaning women, etc.

4. Employment (Cont.)

b. Approximate number: War peak, Date October 1943

Total 10,585 Men 6,404 Women 4,181

When asked about peak employment Mr. Taggart said he thought company had about 11,000 employees, including 4,000 women, in January 1944. However he gave these figures from memory. The above figures as to peak employment were taken from a U.S.E.S. report giving data from this company. .(A few workers outside of Evansville may be included. Information not definite.)

c. Prewar (1940) Figures are rough approximations

Total 4,150 Men 2,905 Women 1,245

d. Anticipated normal employment in postwar period, date Cannot give estimate on date. Will depend upon availability of materials.

Total 8000 to 8500 Men N.A. Women N.A.

5. Plant jobs employing significant numbers of women: (representative jobs - there may be some others)

a. Light Acetylene Welding, with small torch.

Inspecting Various types of visual inspection and also some kinds of inspection requiring use of gauges or instruments.

Light Sub-Assembly Jobs On small and delicate control mechonisms, (such as thermostats) for refrigerators. Some sub-assembly work may be described under general term "bench work." Drill presses sometimes used.

Final Assembly Jobs Light work along final assembly line, such as cleaning refrigerator interiors, putting in trays, testing for leaks, putting on insignia, etc.

Light Jobs in Porcelain and Painting Depts., such as hanging small parts on conveyors, brushing off white coating to make black edge on the refrigerator box, etc.

5. (Cont.)

b. New Jobs for Women during the war No very specific information obtained but women were used more extensively to operate machines than before the war. Some women operated grinders during the war but are no longer doing so. Some women do normally operate drills, lathes, and small automatic screw machines.

c. Additional Job Openings for Women in Next 6 Months

(1) Expanded employment in present jobs. Increased employment of women will be primarily of this type. Refrigerators now being made are pre-war models except, possibly, "for a few gadgets" and therefore the jobs are much the same as before the war.

d. Comments on changes in products, methods, and other policies and practices which affect the employment opportunities for women

Women worked on some ordnance products during the war which are no longer made. Mr. Taggart mentioned particularly gun breeches which were made in large quantities..

6. Rates and methods of pay Comparatively little information could be obtained in time available. Mr. Taggart had no information on clerical salaries. He telephoned company employment office to get minimum hiring rates for factory but emphasized that inexperienced workers are not being hired now, as a general rule. Experienced workers are being called back. (However company has been hiring some veterans who were not employed before).

	Women		Men	
	Factory	Clerical	Factory	Clerical
Rate	.70	N.A.	.80*	N.A.
Job	N.R.	N.A.	Cleaning or General Labor	N.A.

* Mr. Taggart indicated lowest rate for men on production jobs would be .90 or .92.

b. Highest paid job for women in plant Mr. Taggart had no definite information on rates for highest paid jobs for women. Welding is one of highest paid jobs for women in the plant.

c. Proportion of women on an incentive basis All workers included in direct labor are paid on an incentive basis. (Mr. Taggart said that workers are guaranteed 130% of base rate under the incentive plan)

7. Hours of Work for Women

a. Daily 8 Weekly 40 Days Per Wk. 5

The above is apparently considered normal schedule of hoursnow. However due to material shortages direct labor employees were temporarily working 32 hours per week at time of this visit.

b. Lunch Period N.R. Rest Periods When interviewed

Mr. Taggart made a special point of the fact that there are no formal rest periods but that workers may take time off to smoke or have a snack when they wish. The company installed a number of canteens in 1940. When questioned further Mr. Taggart said that persons not working along conveyor lines usually take 15 or 20 minutes off in the morning and again in the afternoon. Along conveyor lines, workers "stagger" their time off. (Since most workers are apparently working under group incentive plans, it seems doubtful whether time can actually be taken off freely without the consent of the entire group affected).

c. Hours same for men and women: Hours vary some by jobs and departments but apparently no specific variations based on sex.

d. If women employed on evening and night shifts, etc. Mr. Taggart indicated that company is somewhat concerned about the possible future effects of the Indiana night work law. He said there are a few departments where it is necessary to have continuous operations, 24 hours per day, 7 days per week. He mentioned particularly the porcelain department where it is desirable to keep gas furnaces going constantly and to maintain a certain temperature all the time. Mr. Taggart also mentioned the painting dept. Some women are wokring on night shifts in these depts., though probably not later than 1:00 A.M. (This plant has numerous different schedules of hours in various depts.) If the Indiana Night Work Law goes into effect, these women would have to be transferred to other depts. (Mr. Taggart believes the company would be willing to transfer them) Some of these women, Mr. Taggart believes, want to stay on their present jobs and, for personal reasons, to work at night.

It was indicated that within the next 60 days the company is planning to change schedules so that no women will be employed after 11:45 P.M.

(Note: The Seeger-Sunbeam Corp. does not operate its porcelain department continuously. See report for that plant. However the operations and processes in the two plants may be different. No detailed investigation was made.)

7.e Changes in Hours since end of war

During the war, schedules varied somewhat at different times and in different departments, but a 56-hour per week schedule prevailed for some time. When Jennie Mohr visited the plant in February, 1943, the schedule was 6 days of 10 hours each. (See earlier plant report).

8. Hiring specifications for women

a Age, minimum No fixed age limit except by law

maximum No fixed age limit

Same for men and women -

b Schooling, minimum required No specific information obtained.

c Marital status Married women are employed. In fact Mr. Taggart believes they are"more dependable"than single women.

d Race Negro women employed at present are all doing cleaning, etc. (Janitor work)

e Other (phys. exam. etc.) "Thorough" physical examinations given to new employees (also periodically, time interval not stated).

The company tried to give preference to women with dependents when it increased its personnel during the war.

At present company has about 1100 former employees who are on the re-hire list if jobs become available. Persons laid off retain their "seniority" for 12 months. (However several hundred veterans not on the company payroll previously have been hired since the end of the war). Mr. Taggart estimated that 200 to 300 women are on the seniority list and believes some will be returned.

9. Training

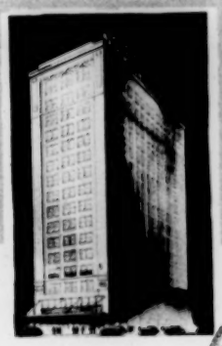
a For beginners Plant does it own training of beginners, including instruction in welding, inspecting, blueprint reading, etc.

(U.S.E.S. Labor Market Report for Jan. 1946 states that the company has been hiring inexperienced war veterans in large numbers and expanding in-plant training).

b. For upgrading On-the-job training.

10. Organized U. E.R. M. W. A. - C.I.O. just recently won an election conducted by N.L.R.B. (Unsuccessful in one or more previous elections). At time of visit formal certification of union had not been received from N.L.R.B. No negotiations had begun as yet concerning a contract. (This information was not received from the company but from Charles Wright, president of Local 813, U.E.R.M.W.A.) There is no union agreement, therefore, concerning seniority, re-hires, etc. This explains perhaps why veterans not employed by the company prior to their war service have been hired while a good many workers laid off have not yet been re-employed.

E. WILLIAM BENSON,
PRESIDENT



Mason 6

WOMEN'S BUREAU
MAR 29 1946
DEPARTMENT OF LABOR

HOTEL **Washington**
32 EAST WASHINGTON STREET
Indianapolis 6

3/27/46 -

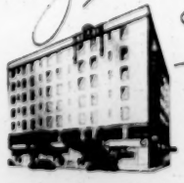
Enclosed are two sets of the ~~last~~ current issue of the Labor Market Letter for Indiana. I was unable to get "back numbers" for Dec. & Nov., 1945 at the State office of the U.S.E.S. for Indiana.

Please refer this material to Mrs. Mason, Miss Williams, and Miss Pidgeon. - (I believe Miss Pidgeon requested such material at one time).

Martha Ziegler

Filed in vault
4/12/46

UNDER SAME OWNERSHIP AND MANAGEMENT



HOTEL LEAMINGTON
MINNEAPOLIS

HOTEL RILEY
INDIANAPOLIS

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3/11/46

USES LABOR MARKET LETTER

UNITED STATES EMPLOYMENT SERVICE FOR INDIANA

DECEMBER, 1945

Employment in 438 manufacturing establishments which provided such information to United States Employment Service interviewers, increased 1.8 per cent from 324,873 in mid-September to 330,596 in mid-November. These figures do not take into account the direct effect of strikes. During the period in which employers were contacted 9 plants were closed because of altercations with their own employees. November employment in these plants was considered to be at the last previously reported level (either September or October) or a combined total of approximately 7,000.

SMALLER EMPLOYMENT GAIN THAN EXPECTED

The gain that was registered from September to November may be somewhat discouraging to manufacturers because of the fact that in September they had forecast requirements for 8.6 per cent more workers in November than they had in September. However, any gain at all coming so soon after a complete changeover from a war to a peacetime economy is a tribute to American industrial resourcefulness and initiative, particularly in view of the unrest and uncertainty that existed. It should also be noted that such industries as textiles and apparel, lumber and finished lumber products, rubber products, iron and steel and their products, and leather and leather products producers continued to experience difficulties in recruiting all of the workers needed because of the low wage-rates offered, working conditions, the nature of the work, or some combination of these factors.

FEMALE LABOR FORCE DECLINES

The number of women employed in factories decreased approximately 3 per cent from September to November despite the increase in total employment. This is a continuation of a trend that has been evident for the past year and particularly apparent since V-J Day. Several factors are responsible. Employers are reasserting a preference for male labor for many jobs in which substitute female labor was used during the war. Returning servicemen are replacing women on jobs equally suited to either sex; and women are continuing to withdraw from the labor market, permanently or temporarily, many of them because husbands have been returned to civilian life. It is apparent that employer considerations are not the most important of these factors because estimated requirements for female workers in January provide for a 10 per cent increase over the November level or almost exactly the same increase as forecast in total employment.

As of November 30, local offices of the United States EmploymentService in Indiana held employer orders for 20,500 workers. Of this number 51.5 per cent of the openings were for unskilled workers; 14.6 per cent were for skilled workers; 12.3 per cent for semi-skilled; 10.2 per cent for clerical and sales; 8.8 per cent

for service workers; and 2.6 per cent for professional and managerial personnel. Two-thirds of all job openings listed offered under 80 cents per hour including 25 per cent of all of the openings at wage rates of less than 60 cents an hour.

(The right to publish information contained in this document is granted provided the source is credited to the USES.)

Demand & Supply - Women - Indiana-1

Indiana - Metal, Machinery, etc.

9-15-42

The UnitedStates Employment Service in Evansville estimates that 1,087 women are now on war production in Evansville, but that 13,000 will be needed by January 1. Some of the individual plant estimates of need are: Chrysler, 6,000; Servel, 4,500; Republic Aviation, 4,000; Sunbeam, 1,750; Hoosier Lamp and Stamping, 750. (Evansville Courier. September 4, 1942)

Indiana

5-15-43

Chief of war production training in Region VI estimates that 20,000 more women must be trained for war jobs in Indianapolis area before end of 1943. (I. Times, May 7, 1943.)

Indiana

5-24-43

1,279 workers are needed in Mishawaka this next year, 8,075 in South Bend. Most of these will have to be women.

Indiana

3-11-44

There has been a marked increase in employment of women in war industries in the state according to the Indiana Employment Security Division. Figures for three periods, 1940 based on the Census, 1943 on I. E. S. D. reports, are as follows:

	1940 March		1943 Jan. 1		1943 Oct. 31	
	Number	Percent of total	Number	Percent of total	Number	Percent of total
Wage earners manufacturing and non manufacturing			189,912	31.9	230,667	36.6
Manufacturing	1/ 42,405	25.6	119,852	27.9	156,124	33.8
Machinery	1/ 7,757	30.1			24,452	32.0
Iron & steel	1/ 1,665	5.1	3,546	5.9	9,225	15.1

(Indiana Employment Review, November, 1943 and)
(Gary Post-Tribune, February 28, 1944)

1/ Operatives and laborers

Indiana - Tennessee

3-18-44 The surplus of women in the Evansville labor market, largely a result of Chrysler and Sunbeam lay-offs, has drawn employment recruiters from Tennessee. Representatives of the Eastman Corp. (doing war work) interviewed a number of women interested in working in the new plant near Knoxville. The goal is 300 women if qualified. Dormatories are available near the Eastman plant. Only women may be recruited for work outside the Evansville area. (Evansville Courier, Mar. 7, 1944)

Indiana - Munitions

4-8-44

The Tokheim Oil Tank and Pump Co., Fort Wayne, makes 37 mm. and 40 mm. shells and trench mortars. Last December the company employed only 147 women and had no formal training. As the result of recommendations, the company today has on-the-job training in most departments and employs 480 women out of a total of 1,000. (Highlights, Apprentice Training, Mar. 29, 1944. Confidential)

Indiana - Tubing

3-18-44 Tubular Alloy Steel plant, Gary, has built up its work force in 16 months, chiefly with inexperienced people. Veteran pipe men did not fit in because the process is different. So large numbers of women were employed and trained. About 47 percent of the production force is women. They operate 10-ton cranes and giant tube reducing machines, mechanical hack saws, straightening machines and different types of locomotives on the plant railway. (Gary Post-Tribune, Mar. 1, 1944)

Indiana - Tennessee

3-25-44

Jobless women in Evansville want to stay there. Representatives of the Eastman Corp. plant near Knoxville recruited less than 6, and have given up. These women, accustomed to high pay in war industries are refusing lower paying jobs and applying for unemployment compensation. "Regulations provide no formula by which to refuse benefits to persons declining to work at less money at a different job." (Evansville Press, Mar. 8, 1944)

Indiana

6-9-45 U.S.E.S. has stated that at least 2,000 more women are needed in Indianapolis war industries. (Indianapolis Star, May 27, 1945)

Indiana - Employment in July 1948

9/30/48 In July 1948, 926 establishments furnished employment figures to the State Employment Service. The following table shows the principal industries employing women.

	Women			
	Number	Percent distribution		Percent of total
All industries	115,203	100.0		21.8
Manufacturing	85,857	74.5	100.0	19.9
Electrical machinery, equipment, supplies	18,315	-	21.3	36.7
Apparel and other finished textile products	10,503	-	12.2	84.2
Machinery, except electrical	7,860	-	9.2	12.9
Transportation equipment	7,068	-	8.2	8.6
Fabricated metal products	6,220	-	7.2	21.2
Rubber products	5,621	-	6.5	35.6
Primary metal industries	5,093	-	5.9	6.3
Chemicals and allied industries	4,283	-	5.0	32.8
Food and kindred products	4,208	-	4.9	22.1
All other 1/	16,686	-	19.4	24.1
Nonmanufacturing	29,346	25.5	100.0	30.9
Retail trade	13,556	-	46.2	63.0
Transportation, communication, utilities	4,289	-	14.6	17.1
All other 1/	11,501	-	39.2	23.8

1/ Industries employing fewer than 4,000 women.

The 926 establishments reported their net labor needs July to November. Required are 13,817 workers, 58 percent of them women. Women will be needed chiefly for retail trade and educational establishments and in factories making electrical equipment. (Indiana Labor Market Letter, August 1948.)

Indiana -3

Indiana -- Workers Needed

11-50 About 14,000 war workers are needed in Indiana by November 1950 according to estimates by 964 selected establishments reporting to the Indiana State Employment Service. Of these, 7,676 or 54 percent are to fill women's jobs. More than 4,500 women will be needed in manufacturing; of these, 55 percent will be wanted in electrical machinery, equipment and supplies. Retail trade establishments expect to require 1,700 more women by November, these being three-fourths of the total number needed. (Indiana Labor Market Letter, August 1950.)

Wisconsin-1

Wisconsin - July 1948

8/30/48 Reports to the State Employment Service from some 1,150 establishments in 17 areas show that nearly 566,000 persons were employed in July 1948, nearly 170,000 or 30 percent of whom were women. Nearly two-thirds of all employed and more than two-thirds of the women were reported in the Milwaukee area.

Of 320,363 workers in manufacturing reported in 16 areas, 71,215 or 22 percent were women. Of 85,370 persons in trade establishments reported in 14 areas, 49,716 or 58 percent were women. Employment in service establishments was reported in only 9 areas. These had 27,573 persons employed, of whom 14,498 or 53 percent were women. The Wisconsin Labor Market, August 1948, Report for each area.)

Wisconsin. Employment of Women

3-14-49 The Wisconsin Employment Service gives the number of persons employed in January 1949 in 1,280 reporting establishments. Women's employment in leading industries was as follows:

Industries	Number	Percent distribution		Percent of total
All establishments	93,693	100.0		24.8
Manufacturing	55,145	58.9	100.0	20.4
Durable goods	29,215			15.3
Nonelectrical machinery	10,946		19.8	13.0
Electrical machinery	6,929		12.6	33.1
All other	11,340		20.6	13.3
Nondurable goods	25,930			32.5
Textile mill products	5,060		9.2	63.1
Leather	4,305		7.8	41.8
Food and kindred products	3,997		7.2	21.4
Paper and allied products	3,586		6.5	17.7
Apparel and finished products	3,388		6.1	76.4
All other	5,594		10.1	30.8
Trade	15,188	16.2		53.4
Transportation, communication and utilities	8,148	8.7		23.7
Service	7,017	7.5		65.4
All other	8,195	8.7		24.3

(The Wisconsin Labor Market, February 1949.)

Wisconsin - Women's Work, July 1949

8-22-49 In July 1949, 92,077 women were employed in 1,320 establishments reporting to the Wisconsin State Employment Service. The number of women in leading industries were as follows:

	Women			
	Number	Percent distribution		Percent of total
All industries	92,077	100.0		25.2
Manufacturing	50,755	55.1	100.0	20.3
Non-electrical machinery	9,667	-	19.0	12.8
Electrical machinery	5,844	-	11.5	32.4
Textile mill products	4,971	-	9.8	65.6
Leather and leather products	4,033	-	7.9	40.0
Food and kindred products	3,922	-	7.7	20.8
Paper and allied products	3,485	-	6.9	17.0
Apparel and finished textile products	3,288	-	6.5	79.2
Fabricated metal products	3,247	-	6.4	18.0
Professional and scientific instruments	2,224	-	4.4	40.3
All other industries	10,074	-	19.8	14.0
Retail trade	13,975	15.2	-	60.8
Transportation, communication and other utilities	7,618	8.3	-	22.0
Service	7,556	8.2	-	67.5
Public employment	6,612	7.2	-	26.7
Finance, insurance and real estate	4,045	4.4	-	63.7
All other manufacturing industries	1,536	1.7	-	9.8

(The Wisconsin Labor Market, August 1949.)

Wisconsin-3

Wisconsin--Age and Marital Status of Women Workers

4-24-50 Reports of job seekers and of employers' demands in certain labor market areas for March 1950 show that older women and married women are encountering some difficulties in finding work.

Manitowoc - "The demand for women is for unskilled factory workers between 18 and 35 with more and more restriction on the referral of married women, especially those with small children. Single clerical workers are also in demand." Of 242 women in the active file of the employment office, 47 were over 50.

Eau Claire - "The supply of single women factory workers under forty years of age is considerably tighter than in January. The supply of this type of worker can no longer be considered as surplus."

Janesville - "Requirements are very stringent, specifying younger, alert women...."

Neenah - Menasha - Of 252 women in the active file of the employment office, 36 were 40 years old or over.

Racine - "Some demands for single girls for work in production departments have been indicated, with over 75 percent of the presently registered female applicants barred from referral because of marital status." Of 634 women in the active file of the employment office 210 were over 40. (The Wisconsin Labor Market, April 1950.)

Wisconsin - Many Women Re-enter Labor Force

10-20-50 Wisconsin's 18 major labor markets are faced with worker shortages in the next 60 days, according to the bimonthly report of the Wisconsin State Employment Service. Areas of labor surplus have virtually disappeared, and in tight areas supply no longer matches demand requirements of expanding industries. The report states in part, as follows:

"During August and September [1950] employment in 1,778 establishments reporting to the USES continued sharply upward for a gain of nearly 15,000 workers, or 3.6 percent, which exceeded the rate of change, either up or down, of any previous two-month period in the last three and one-half years....

"Outstanding in the developments of the expanding employment scene was the surge of women applicants into the USES offices in the last 60 days. Reminiscent of attractive factory jobs during World War II and spurred by the rising trend of job opportunities for women, together with the relaxing of hiring specifications and the shortage of male workers, many women have re-entered the labor force. Employment of women jumped nearly 5,600 since July 1 or 5.6 percent, and reached a total of 106,000." (Industrial Commission, Wisconsin State Employment Service. The Wisconsin Labor Market, October 1950, p. 1.)

Miss Frieda S. Miller, Director

Martha J. Ziegler

Illinois Labor Market Trends

April 15, 1948

WOMEN'S BUREAU
MAY 17 1948
DEPARTMENT OF LABOR

Attention: Mrs. Nason, Miss Williams, and Miss Pidgeon

Attached is a copy of the April, 1948 issue of Labor Market Trends in Illinois. You will note from this report that unemployment has been increasing significantly in Illinois for the past four or five months, particularly in some of the manufacturing industries in the Chicago area.

This report and various others which I have had from individuals indicate that opportunities for women in manufacturing jobs in the Chicago area are definitely limited. In fact, several weeks ago the head of the Reports and Analysis Section of the Illinois Employment Service said that in the Chicago area there is a surplus of women workers except in a few occupations. The principal demand is for stenographers and typists.

MJZ/hw

Enc.

Copy

3/11/46 (6.)

THE STATE LABOR MARKET

UNITED STATES EMPLOYMENT SERVICE FOR WISCONSIN

February 1946

Temporary delays in employment expansion universally typifies the State labor-market situation during the past sixty-day period. Economic uncertainty and material shortages resulting from labor-management disputes in other sections of the country, particularly in the steel industry, have combined to seriously affect and retard operations and expansion plans of Wisconsin industries. This is reflected by the fact that actual employment in 429 establishments participating in the USES reporting program has increased by only 4,200 in the past sixty days. Two months ago, these same establishments indicated that they would require an additional 16,600 workers in January 1946, based on future plans.

A review of employment trends in the 429 firms for bi-monthly periods from September 1945, to January 1946, shows a gradual upswing in total employment. The September total stood at 274,000; it rose to 278,000 in November, and jumped to 282,200 in January 1946. Employment in manufacturing increased steadily from 245,300 in September, to 248,500 in November, rising to 257,700 in January 1946. Non-manufacturing firms registered employment declines in January 1946, falling to 24,500 from 28,700 in September, and 29,500 in November 1945.

Job openings dropped sharply during the period. Two months ago, a total of 24,400 unfilled job openings were listed by employers with the 26 district offices of the United States Employment Service in Wisconsin. Today, the number of unfilled job openings has dropped to 13,700 a decrease of 44 per cent. Seventy per cent of the 13,700 current, unfilled openings, are for men. Factors influencing the decline in USES job openings are attributed to out-of-state labor-management controversies and material shortages. Manufacturing industries continued to lead all other groups, with 58 per cent of the total current openings. The trade and service group is next, with 14 percent of the total.

With few exceptions, almost every labor-market area in the state, has a surplus of employable and available women workers and a substantial male supply.

Despite the fact that there has been a steady decrease in the employment of women since September 1945, employers expect to hire 2,200 additional female workers in the next sixty days. Employers, however, are continuing to replace women workers who quit, with men, usually veterans, but it is clearly evident that they are much more aware of the status of women as a source of labor supply than in the pre-war era. Shortages of women are indicated for the LaCrosse, Beloit and Fond du Lac labor-market areas in certain industries which characteristically use larger proportions of women. The largest segment of the male labor supply is composed of returned veterans.

(Material in this letter may be published provided the source is credited to the USES).

Miss Frieda Miller, Director — December 28, 1945

Martha J. Ziegler

Weekly Report - Dec. 17th
through Dec. 21st.

Attention Mrs. Mason, Miss Larrabee

Monday, December 17th, was spent in the office dictating correspondence and reports and doing various types of miscellaneous work.

On December 18th I visited the Dartnell Corporation to find out what material this firm might have available on the general subject of job evaluation. This visit was made in response to a request from Miss Erickson. A brief report of my visit, and a copy of one publication which I obtained, has been sent to the Bureau.

I also spent some time on this day going over my file of notes on the Racine-Kenosha area since I planned to visit Racine the following day.

December 19th was spent in Racine. The bulk of my time was spent in the local office of USES conferring with Mrs. Nau, who does the interviewing of women applicants, and with Mr. Scoon, manager of the local office. Also I talked with Mr. Jellison who handles the claims in the Racine office of the Unemployment Compensation Division, Wisconsin Industrial Commission.

I also had telephone conversations with a couple of women who are members of the Committee of women called together late last summer by the Mayor. Mrs. Nau is also a member of this Committee. A separate report concerning this visit to Racine is being sent to the office.

December 20th and 21st were spent in the Chicago office. While in Racine I obtained copies of a new type of Labor Market Letter being issued by the USES in Wisconsin. On December 20th I checked with the regional office of USES and found that similar letters are now being issued by most of the State Employment Service Offices. I have been asked to be put on the mailing list for the three states under the Chicago Regional Office of USES. Also I have written to the regional office in Minneapolis asking for copies of any letters issued for Minnesota but as yet have had no reply.

Since I understand from the regional USES that copies of these letters may not be readily available for distribution to Washington agencies, I have dictated a summary of some of the material concerning women workers contained in the Wisconsin Labor Market Letters. This material has been sent to the office separately.

A little time was also spent during this week conferring with Mr. Montgomery, Regional Attorney and Mr. Parrish regional head of B.L.S. about administrative matters and policies in the Chicago offices of the Labor Department, particularly with respect to seniority policies being observed.

December 28, 1945

- FUTURE PLANS -

Weekly Report - Dec. 17th through Dec. 21st.

Since my last report I have had a reply to my letter to Miss Wear in Fort Wayne. She has suggested that I arrange to come to Fort Wayne for a few days beginning either January 16th or the first week in February. I am waiting a few days before sending her a definite reply because of other matters which may develop.

I am still hoping to attend the regional legislative conference of the A.A.U.W. on January 26th.

During my trip to Racine I was asked whether it will be possible for me to arrange to attend a meeting of the Women's Committee the latter part of January. Also Mrs. Nau asked me whether I could plan to speak at a meeting of the Racine Altrusa Club in February. However, both of these engagements are tentative as yet.

I have been wanting to make a return visit to Madison for some time. It does not seem advisable to go there next week since possibly a few people I want to see might be away on vacation. Tentatively, I am planning to go to Madison for a few days during the week of January 7th to 11th.

After I know definitely the dates of my Fort Wayne trip, I hope to make plans for going to Indianapolis, and Evansville. (You will remember these trips were discussed while I was in Washington).

Mrs. Williams (1)

Your copy
P + E file

December 19, 1945

Miss Frieda Miller, Director

Martha J. Ziegler

Additional Labor Market
Information, Kenosha, Wis.

Attention Mrs. Nason, Miss Williams, Miss Ewing

Attached is a summary of Labor Market Information for Kenosha, Wisconsin as of November 1, 1945. This material was sent to me by the Chicago Regional Office of the United States Employment Service. I thought the information might be interesting to Miss Ewing and others who have been working on the Kenosha report.

The material is restricted and cannot be used for publication without a permission of the Employment Service. Probably the Bureau will not wish to publish any of the material but I imagine some questions from the material could be released if we wished to use it. The letter from the Regional Office of the Employment Service asked me to check with that office before releasing any of the information publicly.

WOMEN'S BUREAU
DEC 26 1945
DEPARTMENT OF LABOR

Restricted

(Necessary to check with USES before releasing any of this information)

Kenosha, Wisconsin Labor Market Area

The termination of war production after the cessation of hostilities with Japan accounted for a decrease in total employment of 5500, and in employment of women of 1500 by October 1945 as compared with October 1944 among reporting establishments. Naturally, the greatest decrease occurred immediately after V-J Day. Increased availability of materials for civilian production has made possible an increase of 235 in employment from September 15, 1945 to October 15, 1945. This upward trend in employment will continue during the next four months. Anticipated increases of 800 to December 15, 1945 and 1300 to February 15, 1946 have been forecast.

Labor-management disputes, locally and nationally, have retarded increased employment. If local labor-management disputes now in progress are terminated and no others occur, it is the opinion of the local USES office that employment will increase by at least 1000 in excess of that forecast for the periods ending December 15, 1945 and February 15, 1946.

Job opportunities will be chiefly in automobile production. Future employment opportunities for women will be largely confined to knit underwear, hosiery and mattress manufacturing establishments and to trades and services.

A surplus of labor exists in the district. A count of the current file of applications indicates that over 3100 workers are presumably available for employment. About 40 per cent of this number are women.

Further analysis of the characteristics of the applicants registered for employment and/or filing claims for unemployment compensation discloses that 36 per cent are over 50 years of age. By sex, 44 per cent of the men and 24 per cent of the women are over 50 years of age. By major groups, 75 per cent of the applicants are in semi-skilled or unskilled classifications.

Currently local openings totaled slightly more than 100 of which about one-fifth were for women on November 5, 1945. Of this total, 44 per cent of the openings were in skilled occupations, such as tool maker, watchmaker, baker, auto mechanic, radio repairman, sheet metal worker. The workers in skilled classifications, presumably available in the current file, are in occupations of a production nature, such as, aircraft engine tester, plater, full fashioned knitting machine operator, and meat cutter.

Division of Program Requirements
United States Employment Service
November 1, 1945

Wisconsin
10-20-42

Federal representatives state that 30,000 to 40,000 women will be needed for war plants in Milwaukee next year. (M. Sentinel, October 9, 1942)

WISCONSIN

Women in the Beloit District are asked to register for jobs in war industries. (Beloit News, October 3, 1942)

Wisconsin
2-2-43

Within the next 6 months, 37,000 workers will be needed for war industries in Milwaukee. A survey shows 30,000 women are available for training--housewives with children over 14 whose home duties are such that they could take a job. Opportunities for employment training must be increased. (M. Journal, Jan. 17, 1943.)

Wisconsin
6-28-43

A card check is planned in Milwaukee to test availability of women for work in war plants. Enrollment blanks are being mailed to women in designated areas of the city. Extention of plan will depend on reaction to this spot check. U. S. E. S. will interview women who say they want to work. (M. Journal June 15, 1943)

Wisconsin - Nets of All Kinds

3-4-44 A fisherman in Two Rivers, who 3 years ago devoted his time ashore to hand-knitting basketball goal nets for sporting goods manufacturers, now employs more than 500 persons - practically every available hand in the town making camouflage nets, mooring nets for barrage balloons, fish and cargo nets. An empty storeroom and a garage were used and 157 families work part-time at home earning up to $500 a month each. The business may not end with the war as the latest order was for 28,000 volley ball nets for military recreation centers. (Business Week, Feb. 19, 1944, p. 64)

Wisconsin

7-16-44 U.S.E.S. in Milwaukee reports opening for 3,000 men and 5,000 women. Meanwhile total employment has declined from 143,100 a year ago to 138,600. The Wisconsin Industrial Commission says women are leaving factory work. (M. Journal, July 3, 1944)

Wisconsin, - Pens.

10-28-44 The Parker Pen Co., Janesville has about one-third of its total labor force, 270 men and 440 women, on war work making shell fuses. Total employment is about 2,200, twice that of 1941. Pictures show women at work on pen or ink production; operating automatic point grinders; inspection and checking of boxes of finished pens; feeding bottles to a machine that automatically fills them with ink, cap and boxes them; final packing in cartons. (Fortune, October, 1944. p. 143 ff.)

Wisconsin - Batteries

The Signal Battery Co., Milwaukee, has received a 75 percent increase in present orders and will need 500 to 600 more women. Present employment is 2,000; peak in April 5,000. Layoffs occurred because the army thought it would need a new type of battery in the Pacific. However, Army is still testing the new battery and has decided in the meantime to call for the conventional type. (Milwaukee Journal, July 16, 1945)

1/17/46 ~~Nyswander~~ ~~Robinson~~ Williams

(8)

Miss Frieda Miller, Director November 28,1945

Martha J. Ziegler

Attention Mrs. Nason,Mrs.Nyswander, Miss Plunkett

Recently a memorandum dated November 16th was sent to the office. This was about my conversation with Miss Burton of the Minnesota Industrial Commission and her plans for a Cost of Living study. It was marked to the attention of Mrs. Nason and Miss Plunkett. Inadvertently some of the material which was to be attached to this memorandum was sent to the office with the other memorandum. The attachments were copies of various labor market surveys issued by the Duluth office of the United States Employment Service. These were for September and October, 1945, and for a couple of earlier months in the year, one of which was April.

There were forwarded in reception to Robinson, Plunkett

1/17/46 (8) Ingraham Peterson Williams

Miss Frieda Miller, Director November 23, 1945

Martha J. Ziegler

Recent Visit to Duluth, Minn.

Attention Mrs. Nason, Mrs. Nyswander

Some information concerning my visit to Duluth was sent to the Bureau previously in a weekly report. However, I have been wanting to send some supplementary material giving some additional comments on the Duluth situation. Attached are copies of recent labor market reports for the area, covering to some extent, the period from April to October. The four reports do give some indication as to the employment of women workers.

It may be especially interesting to indicate that on November 1, 1945 there were 1,015 openings on file in the Duluth U.S.E.S. Of this total 344 were openings for women. Of these only 24 were in manufacturing. (Possibly also some of these openings were for office workers in factories). Of the 320 other openings, 5 were in public utilities, 83 in trade, 53 in service occupations except in private households, and 179 for household employment. Also 75% of all the job openings for women pay less than $22.00 a week. The officials interviewed in the Local U.S.E.S. said that 153 of the openings for women were for jobs paying from 45¢ to 54¢ per hour. Many of the openings for household employment are for jobs paying 40 to 45¢ an hour.

The local officials said that the starting rate for men and women in the shipyards was 81¢ per hour. Tack welders received 92¢ per hour. Obviously, therefore, there is a great difference between the wages which were paid in the shipyards and the wages in jobs now available.

On the basis of the material attached I made a few computations as to the proportion of women placed in local non-agricultural jobs by the Employment Service. If my figuring was correct, and it was done rather hastily, over 34% of the placements made in October were for women. This is a fairly good percentage since women are normally employed in smaller numbers in Duluth than in many parts of the country. For example the Y.W.C.A. survey of 42 establishments indicated that women composed 9.7% of the pre-war industrial labor force and that this proportion increased to 18% during the war.

When I was in the U.S.E.S. office figures concerning the number of men and women laid off in recent months were not available. One of the men offered to compile something and gave some figures to Miss Riddell by telephone the next day. I am not sure exactly what is included in these figures. There was a reduction of 630 employees at the Coolerator plant between July 15th and August 15th. This was, of course, prior to V-J. Day. U.S.E.S. also made tabulations of the largest lay-offs since V-J Day and the figures have been brought up to date to October 15th for some establishments and to November 7th for others. In addition to those laid off at Coolerator about 367 workers including 185 women, have been laid off since V-J Day in the major firms. In Duluth there were a good many lay-offs and cut-backs in the ship yards prior to the end of the war. These are not indicated in the current figures on lay-offs.

Unfortunately during my stay in Duluth I was not able to talk directly with persons administering the Unemployment Compensation Law. The U.S.E.S. manager indicated there have been some difficulties. He tried to give me some information on policies. Apparently persons who are laid off and have a chance to be re-hired at the same job after reconversion are not expected to accept a job requiring lower skill and paying much less. However, if there are no prospects of an individual's being re-hired at the type of work done during the war, then a person is apparently expected to be willing to accept a job of the type the persons did before the war. I gathered there have been some complaints in the community since at the meeting where I spoke on Women's Employment problems a man in the audience raised a question about Unemployment Compensation. He indicated that he thought it was wrong to insist that a woman take a low-paying job as a waitress because she had done work of that type before the war.

There seemed to be general agreement that the opportunities for women's employment in Duluth are very limited at present, unless they are willing to accept the available trade and service jobs. There has been some increased use of women in the local meat packing plant during the war and also some women have been used in local meat markets. However, one of the Federation of Labor men with whom I talked indicated that he believes women will soon be out of the meat markets and out of some jobs in the packing plants.

Miss Riddell and I talked briefly with a couple of men in the local Chamber of Commerce. One of them is working on the problem of attempting to get new industries and new business establishments for Duluth. Miss Riddell and Mrs. Dizard of the Y.W. had talked with these men previously urging them to consider that Duluth has a pool of experienced women workers available. These men indicated that they are considering this fact as a community asset. However, they did not feel free at this time to divulge any information as to whether new industries are likely to open in Duluth soon. They talked mainly about the unsettled business conditions which are making it difficult to make progress. Attached is a report released by the Duluth C.E.D. which gives a little general information about the community.

As indicated in my earlier report the Mayor has appointed a committee which has been given some interest in employment problems, although it is primarily a committee to consider labor management problems. Management and labor are represented on the committee. The Y.W.C.A. urged the appointment of a woman to the committee and after some delay a woman from the Y.W.C.A. Industrial Committee was appointed to serve. Recently this committee visited some of the laundries to inquire about the labor situation. Mrs. Dizard indicated that she thinks some members of the committee were surprised at the poor working conditions found. Apparently some of the laundry owners told the committee they were putting in new machinery which will save labor and thus dis-place more workers in the community, if wages get too high.

The Mayor, himself, seems to be interested in discussing problems frankly and in getting different points of view. However, there are evidently some very conservative members of the committee. At a recent meeting a good deal of time was devoted to discussing employment of married women and evidently practically all of the men on the committee agreed that married women should not be permitted to work. The Mayor raised this question with me when

Mrs. Dizard and I called on him and the City Council. I used some of the material in the brief submitted by the Bureau to the War Labor Board and left a copy of this statement with Mrs. Dizard, asking her to send it to the Mayor. He indicated that he would like to have it.

Someone at the last meeting of the Mayor's Committee had proposed that a limit be set on family earnings or that at least the earnings of the principal wage earner be considered in deciding whether or not an individual married woman shall be permitted to work. Naturally, I was startled by this suggestion and its implications but probably no one on the committee thought through the idea very far. I have an idea that most members of the committee would not want the earnings and incomes of their own families limited to a certain figure. This will give you an idea, however, of some of the thinking which can be developed when a community fears unemployment, as I believe Duluth does.

As I wrote previously there were perhaps fifty or sixty people at the evening meeting where I was asked to speak on Women's Employment problems. There was some discussion after my talk which was led by one of the members of the Y. W. C. A. Industrial Committee. I had supposed that there might be some local speakers on the program but I gather that the women did not wish the meeting to last more than an hour or two. I tried to emphasize the importance of developing good standards in the trade and service industries where so many women are employed and where so many of the Duluth openings seem to be.

Mrs. Dizard and Miss Riddell were somewhat disappointed, I believe, at the relatively small attendance at the meeting on Household Employment. This may have been due in part to the weather, which was rather bad. However, from one or two comments made during the meeting I believe these women who want household employees are waiting to see whether there will not be plenty of domestic workers available after a few more months of unemployment. One woman reported during the meeting that she tried unsuccessfully to get a household worker through the U.S.E.S. Then she advertised in the paper and immediately had calls from quite a large number of women. This seems to indicate again that many placements are made without the services of U.S.E.S. This woman said that she asked the person she hired about the rate of pay she wished to receive and the woman said that she wanted 50¢ an hour. Obviously Mrs. Dizard and Miss Riddell would like to do something to follow up the extensive amount of work done during the survey. However, they seem uncertain as to the amount of support which can be obtained in the community. I think they have done a good job in bringing the problems of women workers to the attention of many groups in the community. I asked them about the possibility of getting support from other women's organizations. Mrs. Dizard said that a few women, as individuals, have expressed some interest in the employment situation, but that women's organizations have not seemed particularly interested.

I also urged Mrs. Dizard and Miss Riddell to get in touch with Miss Burton of the Industrial Commission. In a previous memorandum I reported my conversation with Miss Burton in which I suggested that she get in touch with the Duluth group. Attached is a copy of a letter received from Miss Riddell a few days after my return from Duluth. You will note that she said the Y.W.C.A. Industrial Committee voted to contact other community organizations asking them to support the Federal Equal Pay Bill. Also Miss Riddell was planning to write Miss Burton.

I do hope that the group of women in Duluth who are so interested in doing something are able to carry on in some way. I should be very sorry if they become discouraged. Individually, though, they do have difficult problems in the community.

Miss Robinson wrote me that she had sent a copy of the Duluth survey and so I know that at least one copy has reached the Bureau. I am enclosing another copy in case another one would be useful to you.

COPY

11/17/45 (8)

YOUNG WOMEN'S CHRISTIAN ASSOCIATION

DULUTH, MINNESOTA 202 West Second Street

November 17, 1945

Miss Martha Ziegler
1200 Merchandise Mart
Chicago 54, Illinois

Dear Miss Ziegler:

I was very glad to hear from you so soon after your return to Chicago. I do hope your dental trouble is over.

The Industrial Committee met last evening and everyone felt that your stay here was definitely valuable. We feel that the community is now much more aware of the need to consider women in employment plans and that the Y. W. C. A. is concerned about the problem. We are slowly building support for a favorable solution of the problems of women as workers.

The committee voted to contact other community organizations, asking them to get behind the Equal Pay Bill. We are also writing Miss Burton, asking her if she can confer with us as to what can be done on a state level to improve the standards in service industries. Slowly some solutions may evolve.

Once again we want to thank you for all the time and effort you expended on us. Now it is our job to show results.

Yours sincerely,

(Signed) Olive Riddell
(D.N.)
Program Director
Business and Industrial Women

Or:DH

Nebraska

Nebraska

7-10-43

About 4,300 more women will have to be drawn into the labor market in the Omaha-Council Bluff area. (Omaha World Herald, June 27, 1943.)

Omaha, Nebraska

A survey of former Omaha war industries shows considerable reduction in the number of women. The following numbers are quoted:

	Now	Peak
Union Pacific R. R. (labor	170	260
Streetcar operators	20	60
Omaha Steel Works	20	175
Paxton-Mitchell Co. (mch. shop)	8	52
Gate City Iron Works	"Just as many as ever"	
Eaton Metal Prod. Co.	0	50

Not stated who made the survey, or whether women left voluntarily or were laid off. (Omaha World Herald, Sept. 30, 1945)

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Demand & Supply - Women - Iowa -

Iowa

8-25-42

Director of U.S.Employment Service for Iowa states about 60,000 persons are employed in war work in the State, about 12,000 of them women. (Ft.Dodge Messenger and Chronicle, August 14,1942)

Iowa

12-43

Women 18 to 35 are wanted to work in war plants in Dubuque. (D- Tele-Herald, Dec. 12, 1942.)

Iowa

2-2-43

The first call for women to work in war industries in Waterloo has been received by the Employment Service. They are wanted as laborers, assemblers and machine operators. Age limit has been raised to 50 in some cases. (W. Courier, Jan. 17, 1943.)

Iowa 1940-1944

3-25-44

From February 1940 to February 1944 employment in industries reporting to the State Bureau of Labor (chiefly manufacturing, trade, public utilities and laundries) increased 37 percent, women 90 percent. The survey was based on 399 identical firms. The most notable increase in women's employment was in iron and steel, from 668 to 4,860. Their proportion of all in this industry rose from just under one-twentieth to nearly one-fifth. (Iowa Employment Survey, February, 1944)

***Iowa- Employment of Women 5-26-47

In April 1947, there were nearly 27,000 women employed by some 400 reporting firms. Their employment in various industries was as follows:

	Number of women	Percent distribution		Percent of all persons
All industries	26,808	100.0		28.3
Manufacturing	14,529	54.2	100.0	20.8
Food and kindred products	5,777		39.8	22.8
Iron and steel products	3,758		25.9	13.2
Textiles and clothing	2,353		16.2	73.2
All other	2,641		18.2	20.6
Nonmanufacturing	12,279	45.8	100.0	49.1
Public utilities and service	5,452		44.4	55.7
Trade	3,326		27.1	60.2
All other	3,501		28.3	36.1

Iowa

12-27-43

Dec. 12, 1200 community leaders in Davenport and Bettendorf planned to start a house-to-house survey to determine the available man and woman power. (D. Democrat and Leader, Dec. 6, 1943.)

Iowa

Of 15,850 workers in 23 war plants in Cedar Rapids, 4,866 or 30.7 were women. 850 more workers will be needed by May and can be secured only by better utilization of women. In 1940, 1,000 women were employed in manufacturing in Cedar Rapids, 15 percent of total (C. R. Gazette, February 27, 1944 and Census.)

Iowa - Rubber

2-26-44

Construction has started that will substantially increase capacity of Lake Shore Tire and Rubber Co., Des Moines. The company makes tires and self-sealing gas tanks. Most workers on tires are men, but in the gas tank section most are women. (Des Moines Register, Feb. 13, 1944)

Iowa Employment of Women

3-1-48

In January 1948 more than 27,000 women were employed by 379 firms engaged in manufacturing, trade, utilities, and certain services /type not reported/. This number represented an increase in employment in these same firms over 1946 and 1947, but a decline from 1944 and 1945.

Trends in women's employment in the 379 firms was as follows:

	Number of women	Numerical change from preceding date	Percent of all workers
January 1944	28,870	1/	32
January 1945	27,925	- 945	33
January 1946	24,564	-3,361	29
January 1947	26,915	+2,351	29
January 1948	27,116	+ 201	27

1/ Not available.

In 1948 more than one-fifth of the women were in food and kindred products industries; not quite one-fifth in utilities and service. Nearly 14 percent were in trade; and nearly 13 percent, in iron and steel production. /Similar data are reported monthly./ (Iowa Employment Survey, January 1948.)

Demand & Supply - women - South Dakota

8

South Dakota

A house to house canvas is planned in the Pierre area to recruit housewives for private business jobs so as to release men for war projects. (Sioux Falls Argus-Leader, October 2, 1942)

South Dakota - Mica

A former CCC camp in Custer State Park, will house 200 Indian girls while they rift and sort mica. Other girls will be employed as cooks, kitchen and dining room help and as "handymen". Miners will deliver the mica directly to the camp. (Manpower Review, October 1944, p. 13).

Minnesota

Minnesota - Mining

2-26-44 Women are replacing men at the plants of Butler Bros., (iron mines) Cooley. Pictures show them: welding in repair division; manipulating valves in pumping station; operating levers which open gates to load ore cars; shoveling ore spilled from a conveyor which takes ore to washing plant. (an outdoor job) Women work in the engineering department and laboratory. (The Butler Miner, June, 1943)

Minnesota - Ordnance

4-14-45 **Gopher Ordnance Works at Rosemont "desperately needs hundreds more" women. (St. Paul Pioneer Press, Mar. 25, 1945.)**

Minnesota

6-23-45 Of 368 workers laid off June 1 by Minneapolis Honeywell Regulator Co., 307 were women. Of these 12 men and 167 women were referred to high priority jobs in 27 other plants. In some cases suitable jobs were not available through U.S.E.S. interviewers at the plant. These interviewers established that many women expect to retire from the labor market, and others plan for vacations before accepting new jobs. (Minneapolis Star Journal, June 8, 1945)

Duluth, Minn.

The Y.W.C.A. in Duluth has completed a survey of employed women that shows that 83 percent are entirely self-supporting; 74 percent want to work after the war. A few important points were reported on in terms of percent of all women affected by industry group:

	Percent of women		
	Union members	Equal seniority	Equal pay
Total	64	—	—
Manufacturing	77	71	37
Service	48	50	50
Transportation	49	67	67
Trade	43	55	55

In all industries three-fourths of the union women felt membership had helped them. (Milwaukee Labor Press. Sept. 13, 1945)

Minnesota Job Requirements

Union representatives say that employers are getting "choosy." Among the bars against people looking for work are:

"Men only" qualifications for jobs formerly open to both men and women.

Age limits, usually at 40 years, applying particularly to women.

Specifications as to race and religion.
Refusal to accept handicapped workers.

Of 4200 openings for women in the State, 93 percent pay less than 65 cents; 70 percent, less than 55 cents; 32 percent, less than 45 cents. (Minn. Labor, Oct. 12, 1945)

North Dakota

North Dakota

2-26-'44 There is a critical shortage of women, especially for food processing around Greater Grand Fork. More than 100 are needed for a potato dehydration plant, and others for egg dehydration. (Grand Fork Herald, Feb. 16, 1944)

U. S. Department of Labor
WOMEN'S BUREAU
Washington

Table I - Employed Workers 14 Years Old and Over by Major Industry Group and Sex, Omaha, Nebraska, 1940

Industry Group	Total	Women		
		Number	Percent distribution	Percent women of total
Total	81,486	24,932	100.0	30.6
Wholesale and retail trade	20,030	5,814	23.3	29.0
Manufacturing	14,691	2,455	9.8	16.7
Transportation, communication, and other public utilities	11,902	1,634	6.6	13.7
Personal services	8,599	5,960	23.9	69.3
Professional and related services	7,385	4,575	18.3	61.9
Finance, insurance, and real estate	6,582	2,786	11.2	42.3
Government	4,205	720	2.9	17.1
Construction	3,527	96	.4	2.7
Business and repair services	2,128	255	1.0	12.0
Agriculture, forestry, and fishery; mining; amusement, recreation, and related services	1,374	246	1.0	17.9
Industry not reported	1,063	391	1.6	36.8

Table II - Employed Workers 14 Years Old and Over by Manufacturing Industry and Sex, Omaha, Nebraska, 1940

Industry Group	Total	Women		
		Number	Percent distribution	Percent women of total
All manufacturing industries	14,691	2,455	100.0	16.7
Food and kindred products	8,285	1,251	51.0	15.1
Printing, publishing, & allied industries	1,611	264	10.7	16.4
Iron, steel, and their products	745	39	1.6	5.2
Machinery	739	84	3.4	11.4
Chemicals and allied products	401	67	2.7	16.7
Apparel and other fabric textile products	377	238	9.7	63.1
Furniture, store fixtures, and miscellaneous wooden goods	357	44	1.8	12.3
Nonferrous metals and their products	330	14	.6	4.2
Paper and allied products	260	66	2.7	25.4
Stone, clay, and glass products	212	15	.6	7.1
Automobiles and automobile equipment	199	33	1.3	16.6
Petroleum and coal products	144	19	.8	13.2
Leather and leather products	124	23	.9	18.5
Textile-mill products; logging; sawmills; and transportation equipment except automobile	159	21	.9	13.2
Other and not specified manufacturing industries	748	277	11.3	37.0

Source: 16th Census of the United States, 1940. Population, Second Series, Characteristics of the Population, Nebraska.

Table III - Products of Manufacturing Industries, Omaha, Nebraska, 1939

Some indication of the products of Omaha manufacturing industries may be obtained from a list of the specific industries within each major group. The following list includes those with 50 wage earners or more, in order of size:

Food and kindred products

Meat packing, wholesale
Bread and other bakery products (except biscuit, crackers, and pretzels)
Malt liquors
Biscuit, crackers, and pretzels
Flour and other grain-mill products
Creamery butter
Poultry dressing and packing, wholesale
Prepared feeds (including mineral) for animals and fowls
Nonalcholic beverages

Printing, publishing, and allied industries

General commercial (job) printing
Newspapers; publishing and printing

Iron, Steel and their products (except machinery)

Fabricated structural steel and ornamental metalwork, made in plants not operated in connection with rolling mills
Power boilers and associated products

Chemicals and allied products

Drugs and medicines (including drug grinding)

Furniture, and finished lumber products

Wooden boxes except cigar boxes
Partitions, shelving, cabinet work, and office and store fixtures
Cooperage
Upholstered household furniture

Nonferrous metals and their products

Sheet-metal work not specifically classified

Stone, clay, and glass products

Concrete products

Lumber and timber basic products

Planing mills not operated in conjunction with sawmills

Source: Census of Manufactures. 1939. State Series. Nebraska

COPY

Texas

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
WASHINGTON 25

Williams - See p. 2 (M & P)

Regional Office
618 New Federal Building
St. Louis 1, Missouri

April 4, 1946

Miss Frieda Miller, Director
Women's Bureau
U. S. Department of Labor
Washington 25, D. C.

Dear Miss Miller:

Miss Dju and I have had a very busy, but interesting time during her stay in St. Louis. She left last night for Little Rock, and I plan to meet her in Fort Worth, on Monday morning. Mr. Carlton, the Texas State Labor Commissioner, is unable to "escort" us but he is sending his deputy, Miss Lurleen Hubert, to accompany us.

I had a wire this morning from Mr. Mims, Manager of the Mineral Wells Chamber of Commerce, saying that it was necessary for him to be out of town on Monday, and hoped that we could postpone our trip, otherwise he will have someone else "do the honors". I wired him that we could not change our plans now. We have reservations at the Baker Hotel in Mineral Wells.

Miss Dju made a very fine talk at the Industrial Personnel Women's meeting and also at the Safety Meeting at the Pittsburgh Plate Glass Company. She says that she is not a good speaker, but she does very well when not attempting a formal presentation. The Personnel Women were quite delighted with her. I have enjoyed working with Miss Dju and feel that I have profited a great deal from the industry contacts.

I am leaving St. Louis tonight in order to see the U.S.E.S. Manager in Wichita, Friday, regarding the meeting with employers on the afternoon of April 12. He is calling them together and wants me to present the problems of the women workers in the hope of getting some additional job openings.

The employment situation in St. Louis has changed very much during the last few weeks. According to all the industries I have contacted, they are having difficulty getting women workers, and the U.S.E.S. now reports that women are not coming to the office looking for jobs. There is an over-supply of male workers but not female. No doubt there are plenty of older women available but industry is once more becoming very selective in hiring women.

My other reason for going via Wichita, was to meet with some of the members of the Planning Committee for the Minimum Wage meeting April 12. I think it is necessary that I get more of the details before that day. Perhaps I can prevent them from throwing overboard their present law -- at least I can try.

I had a letter from Miss Mills, Dean of Women at the University of Missouri, who is an officer in the Altrusa Club. She stated that the Altrusas have money to conduct a study of the problems of the older woman worker and wanted to discuss the whole matter with me. Unfortunately, I will be out of the city when she planned to come to St. Louis, but I hope to see her on my return. I believe she would like to have some help from the Women's Bureau.

You will recall that I mentioned to you the possibility of your speaking at the May meeting of the Industrial Personnel Women. When they first asked me about you no subject had been selected. Since that time they want someone who will speak on training in industry. I told them I didn't believe you would be interested. The May meeting will be open to men and women. The Program Chairman wondered if you could suggest some person, either man or woman, who could speak on training in industry. The only one I could think of was Augusta Clawson, and she was here last May. They don't want anyone in department store work. If you know of any person who would be qualified to speak on this subject, please let me know.

Sincerely,

Elsie Wolfe
Regional Representative

P. S. See enclosed letter from Mr. Wilson, Assistant Commissioner of Labor in Kansas, in regard to material I sent him on Workers' Education.

cc: Mary Cannon

Material prepared for:-
Miss Ruth Leach, Vice President of
International Business Machine Company for speech
at Oklahoma University

Washington

March 21, 1946.

The Women's Bureau Regional Representative (Miss Elsie Wolfe) for the Missouri-Oklahoma Region visited the Tulsa and Oklahoma City areas several times during the war. Also in November 1945, three months after V-J Day, she spent some time in these areas. Her reports on the employment of women during these periods show:-

Tulsa Area

Before the war, in April 1940, according to Census reports, about 21,000 women were employed and 3,000 were hunting jobs. Most of the women, over 80 percent, were working in the service and trade industries. Only about 10 percent were employed in manufacturing plants--the one fairly large women-employing factory was making textile products.

In March 1945, during the war, women's employment increased to 41,600 or about doubled and unemployment dropped from the 3,000 in 1940 to 700.

This increase in women's employment was due primarily to the opening of two aircraft plants and a large ammunition plant, manufacturing smokeless powder.

In the larger aircraft plant, during peak production in March 1945, nearly 10,000 women were employed and they comprised about one-half of the work force. They were employed on many types of production jobs. They operated small machines such as punch and drill presses, band saws, lathes. They assembled the hundreds of small parts into units. They worked as riveters in the fuselage. They were working even out in the hangars, repairing and modifying planes for special uses in Arctic Regions and Tropical jungles. In fact, they were employed on nearly every kind of job in the plant.

Now in this post-war period, employment estimates for November 1945 and the early months of 1946 show a decided contrast with the wartime period. The number of employed women has dropped from the 41,600 during the war to 29,000--a decrease of over 10,000 and the number seeking jobs has risen from the wartime number of 700 to about 4,000. The larger aircraft plant has reduced their women labor force from 10,000 to about 300, and the other aircraft plant has also scaled down to a minimum. The ammunition plant is no longer operating. While the 8,000 decrease in the labor force shows that undoubtedly many "duration workers" have dropped out of the labor market, there still remains some 6,000 women hunting jobs during this period.

Shelf
Postwar
Regional files

WOMEN'S BUREAU
U.S. DEPARTMENT OF LABOR
Washington

March 21, 1946.

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Rosie, the riveter, has almost no chance of continuing to rivet and a small chance of getting any job in a manufacturing plant, as the consumer goods plants now operating will employ few additional women and in the new plants the comparatively few women hired will be mostly clerical workers. She probably has a chance of about one in ten of getting any job and that would probably be in the trade and service industries, such as hotels, restaurants, laundries.

Oklahoma City Area

The story of the employment of women since 1940 in this area follows closely the same pattern as in the Tulsa Area.

Before the war in April 1940, some 31,000 women were employed, mostly in the traditional women-employing industries of service and trade, and 7,000 women were hunting jobs.

By March 1945, the number employed had doubled, bringing the total women workers up to a level of 62,000 and the unemployed had dropped from 7,000 in 1940 to 2,000.

In this area, the increase in employment during the war period was due primarily to the employment of women in an aircraft plant and in the Oklahoma City Air Depot. This number of women employed in the aircraft plant accounted for about one-third or 11,000 of the total increase and the Air Depot for 7,000 additional women.

By November 1945, the number of employed women had dropped from the wartime peak of 62,000 to 48,000, one-fifth less, and unemployment had increased from 2,100 to 4,800 or more than doubled. By March 1946, the number of women seeking jobs had reached 6,000. However this was 1,000 less than the number out of work in 1940.

The aircraft plant has now entirely closed down. The Air Depot has been made a permanent base, but the number of women employed has been reduced to 4,500. Reduction is being made on the basis of seniority, efficiency, and veterans preference. Women who leave voluntarily are not being replaced by men. No hiring is being done. The women who are kept on are still employed on all types of work as during wartime. These jobs are aircraft mechanics, engine mechanics, welders, sheet-metal workers, and other production jobs. Some women are employed in professional and technical work. There are four women personnel counselors, women wage analysts, a woman in charge of the Efficiency Rating Department and the Chief Clerk is also a woman.

There are few jobs now available even for veterans. Labor supply far exceeds the jobs available except for domestic employees, where there is a demand for some 1,500 Negro women, but the low wages offered nullify the effectiveness of the demand.

Many new businesses have opened in Oklahoma City during the past year, but they are mostly small establishments and employ less than five workers, usually men.

It would seem that the lack of suitable re-employment opportunities for the displaced woman war worker constitutes a serious problem in this area.

COPY

(9) (10) Texas - Okla

4.5.46

April 15, 1945

Regional Office
618 New Federal Building
St. Louis 1, Missouri

Miss Frieda Miller, Director
Women's Bureau
U. S. Department of Labor
Washington 25, D.C.

Dear Miss Miller:

I had a very busy but interesting time on my recent trip to Kansas, Oklahoma and Texas. No doubt Miss Dju will give you all the details on the Texas trip so I shall not elaborate.

Did you know that Mr. Carlton is no longer Labor Commissioner of Texas, and that Mrs. Maureen More is now in charge? (See clipping attached). Miss Hubert, the Deputy Commissioner in Dallas, is acquainted with Mrs. More and believes that she will do a good job. Miss Hubert was most cooperative and very friendly, so we had a good time in Texas. Apparently we saw Texas at its best. The blud-bonnets were all in bloom and the countryside was beautiful.

(not attached to this copy)

Miss Hubert took us to Dallas in her car so I had an opportunity to see Mr. McKinsey from BLS, who is planning to come to Oklahoma City for the Minimum Wage meeting. The date of this meeting in Oklahoma City has again been changed due to a conflict and is now scheduled for Monday, May 13, instead of May 6. I trust there will be no further changes.

The situation in the Oklahoma State Labor Department is rather unfortunate in regard to candidates for Labor Commissioner. Mr. Murphy was urged to run again but refused due to age. He tried to get Mr. Hughes, his assistant, to run but without success. The chief inspector, Mr. Newton, filed for the position with Mr. Murphy's support. A few days before my visit Mr. Hughes changed his mind and decided to run for the office so there are now two candidates from the State Labor Department. Mr. Murphy said that he will continue to support Mr. Newton because Mr. Hughes absolutely refused.

We had three very successful meetings in Wichita, and I also made a radio broadcast on "Facts About Women Workers; Reasons Why Women Work", etc. On Thursday night I spoke to a group of union members at the YWCA's annual "U-Day" program. There were about 75 women present representing 10 or 11 unions. They wanted me to talk on "Legislation for Workers".

The following day I met with employers. Mr. Corsaut, Manager of the U.S. Employment Service, sent invitations to all of the women-employing industries in Wichita, and over 50 of them responded. I talked primarily on the danger of reviving discriminatory practices toward women workers and also on the need for raising our minimum standards. The discussion that followed was primarily on equal pay and minimum wage. Some of the employers remained after the meeting to talk about training.

Mr. Clark, from BLS, was present as a resource on wages paid in Kansas. Both Mr. Wilson and Mrs. Kennedy, from the State Labor Department were also present but they did not participate in the discussion.

In speaking of the discrimination against older women workers, two of the representatives of national chains -- the Penney Stores and Montgomery Ward -- expressed the request that the Women's Bureau contact their national personnel offices in an effort to change the policy that is now in effect against older women. In fact, they are instructed not to hire women over 35 and prefer that they be under 30. All of the older women who worked during the war were laid off soon after V-J Day. The local personnel people have no choice in the matter because all policies are formulated in the National Office.

You will be interested to know that the personnel director at the Coleman Lamp Company came to both meetings and also invited me to come to the plant on Saturday morning so I made a special effort to go. They are negotiating a new wage contract with their union and he wanted to tell me about the provisions.

There is much follow-up work that should be done on the Wichita meetings -- both with employers and on Minimum Wage.

The Missouri Association for Social Welfare is holding their annual conference in Springfield, June 5 through 7. They have invited the Women's Bureau to have an exhibit. I think it might be worthwhile for me to be present for at least one day and I shall make plans for an exhibit.

This afternoon Mrs. Gellhorn is having a meeting of the State Steering Committee on Minimum Wage and tomorrow night I am speaking to the Business Girls at the YWCA on "What's Ahead for the Employed Woman".

Sincerely,

Elsie Wolfe
Regional Representative

EIW:ct

U. S. DEPARTMENT OF LABOR
WOMEN'S BUREAU
Washington

MAJOR OCCUPATION GROUP AND MAJOR INDUSTRY GROUP OF EMPLOYED WORKERS, BY SEX, COLUMBIA, MISSOURI, 1940

Major occupation group and industry group	Male	Female
Employed persons 14 years old and over except on public emergency work	4,835	2,818
MAJOR OCCUPATION GROUP		
Professional workers	709	471
Semiprofessional workers	84	52
Farmers and farm managers	36	-
Proprietors, managers, and officials, except farm	705	125
Clerical, sales, and kindred workers	793	861
Craftsmen, foremen, and kindred workers	786	16
Operatives and kindred workers	635	232
Domestic service workers	29	503
Service workers except domestic	619	538
Farm laborers (wage workers) and farm foremen	60	-
Farm laborers, unpaid family workers	-	1
Laborers, except farm	342	6
Occupation not reported	37	13
INDUSTRY GROUP		
Agriculture	119	3
Forestry (except logging) and fishery	-	-
Coal mining	14	-
Crude petroleum and natural gas production	2	-
Other mines and quarries	25	-
Construction	578	4
Food and kindred products (manufacturing)	143	17
Textile-mill products (manufacturing)	-	-
Apparel and other fabricated textile products (manufacturing)	9	46
Logging	-	-
Sawmills and planing mills	4	-
Furniture, store fixtures, misc. wooden goods (manufacturing)	4	-
Paper and allied products (manufacturing)	-	-
Printing, publishing, and allied industries	153	41
Chemicals and allied products (manufacturing)	8	-
Petroleum and coal products (manufacturing)	5	-
Leather and leather products (manufacturing)	4	3

MAJOR OCCUPATION GROUP AND MAJOR INDUSTRY GROUP OF EMPLOYED WORKERS, BY SEX, COLUMBIA, MISSOURI, 1940 --Continued

Major occupation group and industry group -	Male	Female
Stone, clay, and glass products (manufacturing)	15	2
Iron and steel and their products (manufacturing)	8	1
Nonferrous metals and their products (manufacturing)	6	-
Machinery (manufacturing)	12	-
Automobiles and automobile equipment (manufacturing)	1	-
Transportation equipment (manufacturing) except auto	1	-
Other and not specified manufacturing industries	18	14
Railroads (inc. r.r. repair shops) and railway express	35	-
Trucking service	101	5
Other transportation	86	3
Communication	46	32
Utilities	85	7
Wholesale trade	170	16
Food and dairy products stores, and milk retailing	216	45
Eating and drinking places	159	110
Motor vehicles and accessories retail, and filling stations	167	8
Other retail trade	442	282
Finance, insurance, and real estate	209	80
Automobile storage, rental, and repair services	110	4
Business and repair services, except automobile	58	9
Domestic service	41	522
Hotels and lodging places	107	154
Laundering, cleaning, and dyeing services	71	105
Miscellaneous personal services	103	122
Amusement, recreation, and related services	64	16
Professional and related services	977	988
Government	330	140
Industry not reported	129	39

Source: 16th Census of the United States, 1940. Vol. II, Characteristics of the Population, Missouri, Table 33.

WOMEN'S BUREAU
U. S. Department of Labor December 20, 1945
Washington

(12)

Preliminary Report on
POSTWAR EMPLOYMENT EXPECTATION OF WOMEN EMPLOYED IN THE SAN FRANCISCO-OAKLAND METROPOLITAN AREA

(Information was obtained through home interviews with over 2,000 women in the spring of 1945.)
From a series of postwar employment studies made by the Women's Bureau.

A. Highlights of the Study

I. From March 1940 to April 1944, the resident population of women 14 years and over increased nearly one-third in this area. From March 1940 to the spring of 1945 the number of women employed in jobs other than household employment increased from 137,700 to 274,500 or nearly doubled. While there has been some increase in the employment of women in all industries, the war industry plants and the government installations accounted for 60 percent of the increase in the employment of women. Women's employment in manufacturing increased from 20,100 in 1940 to 73,600 in 1945; in government owned and operated establishments from 5,600 to 37,600.

II. Sixty-nine percent of the women employed in this area in 1945 expect to continue to work in the postwar period, and about 61 percent or 167,500 women desire jobs in this area. Women workers who moved into the area and plan to continue to work in the area constitute about 1/3 of the expected postwar labor force, although they comprised as much as 40 percent of the wartime force. As the shipyards, the government operated war projects, and other war inflated industries scale down or close entirely, it would seem that at least 30,000 or one-fifth more jobs will be needed for women in this area than were available in 1940, if full employment is provided. The number of women wanting jobs in this area is however only 5 percent greater than the number of women working and seeking work in 1940.

III. Three-fourths of the women expecting to continue working are doing so because they have to depend on their own resources for self-support and in many cases to support others. One-fifth are working for some special purpose, such as to buy a home, to educate children, to pay off debts, to have own business.

Only about 5 percent expect to continue in the labor market primarily because they like working, like having their own money and like being independent.

Three of every four women war workers planning to continue now live with their families, and 92 percent of these women contribute regularly to to the household. One of every five is the sole support of a family of two or more persons. Over two-thirds of the total money in the pay envelopes of all these women living as family members is contributed regularly to the household.

The women living away from home also have their economic family responsibilities. Our study shows that one-third of their total take-home earnings is contributed regularly to the support of relatives.

Of the women employed in the wartime period, 85 percent of the single, 93 percent of the widowed and divorced and 53 percent of the married plan to continue working.

B. Analysis of the Study

I. War Labor Force

Composition of the War Labor Force

Over one-half (52 percent) of the women working during the war were employed before Pearl Harbor - two-thirds of them in the trade and service industries.

Of the new workers not in the labor force

1/3 were in school.
2/3 were engaged in their own home housework.

Shifts in Industry of Women Employed Before Pearl Harbor

Forty-five percent of these women shifted to other industries, usually to the war industry plants or government establishments. Three-fourths of the women employed in manufacturing plants before the war stayed in this industry or secured jobs of similar type in the government installations.

The greatest shifts to other industries occurred in the traditional women-employing industries, trade and service. About half of these women left their old jobs and learned new skills in the war plants. This was due primarily to the wage differentials. The report shows that the average weekly take-home earnings of women working in the war plants was $39, in restaurants $31.50, in stores $30.50, in laundries $30, and in hotels $27.50.

Wartime Jobs of the New Entrants in the Labor Force

Seventy-five percent of the former school girls chose clerical, sales, or other white collar work, the other 25 percent were about evenly divided into factory operatives and service workers.

The former housewives were an older group; two-fifths of them were 35 years of age or older. Of every six of these war workers, two were factory operatives, two clerical and kindred workers, and the remaining two, saleswomen or service workers.

These new workers contributed greatly to the war effort, as they comprised over one-half of the women employed in the government and war industry plants and helped fill up the gap in the trade and service industries caused by the shifting to war work of the regular employees in these industries. In the stores and eating places, they made up one-half of the war-time women labor force and in the hotels, one-third.

II. Employment Status of Women Expecting to Remain in the Labor Market

While 69 percent of the women working in 1945 plan to continue working after the war, the proportion is decidedly higher among women who were employed before Pearl Harbor than among those who became employed after that time - 77 percent as compared with 61 percent. Nearly three-fourths of the former school girls (71 percent) expect to work; slightly more than half (55 percent) of the housewives plan to continue in the labor market.

Seventy-five percent of the women who worked in the consumer-goods manufacturing industries as compared with 62 percent in the war industries expect to work in the postwar period. Over one-half of the women in the shipyards who plan to drop out of the labor market are the former housewives.

The number of women employed in manufacturing during the war who want jobs in this area after the war is about twice the number so employed in 1940; in government the number is over three times as great; and in the trade and service industries slightly less.

III. Economic Responsibilities of Women Expecting to Stay in the Labor Market

Of every 100 women

23 live apart from their family and are on their own, and most of them have to depend on their own resources for a living
77 live with some member of their family
16 are the sole support of families of 2 or more
57 contribute substantially each week to the family households of which they are a part
4 make no regular contributions to the family household

IV. Reasons for Women Expecting to Continue to Work

Of every 100 women

76 work to support themselves and in many cases others
18 have special reasons such as to buy a home, educate children, pay off debts, etc.
6 like to work, like having own money, like being independent.

Housing

There was at one time a high turnover at Linda Vista but this has decreased considerably recently. In September 1943 there was a waiting list of 600 for houses at Linda Vista.

Preference is given to families with children in Linda Vista because of the difficulties they have in getting housing elsewhere. Below are figures showing the number of children in different age groups living in this housing project:

(September 10, 1943)

3722	Under 5
2236	6 to 11
562	12 to 13
993	14 to 18
7513	18 and under

Riverlawn Dormitories: The Riverlawn Dormitories were originally built for men but they are now being converted over to women's dormitories so that women are now living in some and men in others. Eight of the seventeen buildings were occupied by women in September.

Linen is changed in the beds every week, and two towels are changed every day. The toilets, showers, and laundry basins are in the same rooms in the different buildings. There is no laundry room with many laundry stands and ironing boards because the dormitories were built for men who would not use such facilities. Consequently the women do their ironing in their rooms.

A center is being built which will include a cafeteria, medical center, and recreational facilities. At present there is no place on the grounds where the occupants may get hot food, and they must go some distance down the highway to find a place to eat.

Rates:	Large single room	$5.00
	Small single room	4.50
	Double room	3.50

Child Care

Child Care Survey: A child care survey in San Diego City and County was made by the Joint Defense Council Subcommittee on Child Care. The survey was completed in April 1943.

The survey revealed that 22-25% of all working women have children under sixteen years of age. There are 50,000 to 53,000 working women in San Diego which would mean that 11,000 to 13,000 would have children under sixteen. Questionnaires of 5557 women were tabulated and this group had 9371 children, which would mean that there would be close to 19,000 or 20,000 children of mothers working in San Diego.

4708, or 87%, of the mothers were satisfied with present child care arrangements for their children, with only 13% indicating dissatisfaction with present arrangements. However, 3658 children, or 41% of the children, were cared for by a neighbor or friend (unlicensed boarding homes), left alone, or supervised by older children.

See pages attached to report (in Statistical File) for additional data on Child Care Program.

A Community
Report from
San Diego.

~~Buchanan~~
Hooks (to file
with regional
data

COMMUNITY FACTORS CONTRIBUTING TO TURNOVER AMONG
WOMEN IN SAN DIEGO WAR INDUSTRIES - M.K.A. - NOV. 1943

Laundry Service

Those in the armed forces are given priorities in deliveries of laundry and as a result it sometimes takes civilians as long as three weeks to get their laundry back. This was believed one of the causes of high absenteeism among some women war workers. Mr. Woodhead, President of Consolidated Vultee, was reported as having made the statement that he considered the laundry problem one of the chief causes of absenteeism among women at Consolidated.

The laundries have had great difficulty in getting workers because of low wage rates. The rates for most of the laundry workers are from 45 cents to 55 cents. Five of the thirty major laundries in San Diego filed Form 10's with the War Labor Board for wage increases. These were rejected by the War Labor Board because the labor situation was considered not so critical if only five of the thirty filed application. Then also, the Area War Manpower Commission had made some statement that women workers should be available for laundry work because of the number laid-off at Rohr Aircraft, the women who had left Consolidated, and the women coming into San Diego to join their husbands in the armed forces. However, in actual practice few of these women were willing to work in the laundries at the wage rates offered.

Now all thirty major laundries are in the process of filing Form 10's for increases in wage rates. These are then to be accompanied by statements from the WMC, USES, Navy, Army, Congested Areas Committee, and Consolidated Vultee Aircraft pointing out the seriousness in the laundry situation. There is now also some discussion of the laundries trying to get piece rates established so that the more skilled operators can earn more money by virtue of their being able to produce more.

Stores, Meat Markets, Restaurants, and Banks

Food shortages were reported by almost everyone contacted and it was considered a contributing cause to turnover among women because of the resulting difficulties in shopping. Food allotments into San Diego are based upon the 1940 civilian population which was around 200,000, and the present population is estimated as approximately 400,000. And no consideration is given to the great number of military installations in the area, and the great number of relatives and friends coming into San Diego because of the men stationed at these installations.

Mr. Lyman Dixon of the Wage and Hour Division assisted on a survey made in January 1943 which revealed that 70% of the customers in the restaurants were military personnel. This means that there are shortages of food for the civilians eating out, and it makes all the eating places very crowded for war workers. Thus, women working in the war plants would have difficulty in taking their families out to eat in public eating places.

The stores and meat markets close at six o'clock and very often there is nothing left for them to buy when they reach the store. Many of the women counselors said that women complained of shopping difficulties with the stores not staying open nights, and the shortages of food and merchandise when they did get into the stores. Some of the women workers contacted personally also complained of this. There was one example cited of a woman having to go to eight different stores before she could get a quart of milk.

There has been some local criticism of the meat cutters union for not allowing the workers to stay beyond six o'clock so that the meat markets could stay open longer. Contacts with the Amalgamated Meat Cutters and Butcher Workmen of America revealed that it was more a question of having adequate supplies of meats than a problem of keeping the meat shops open. Often the meat markets were sold out by

Stores, Meat Markets, Restaurants, and Banks

around 4 o'clock in the afternoon and there was no object in their staying open later than 6 PM.

The packing house deliveries were reported by the meat cutters union as being 35% below the needs of this area. The union also reported that there would be a scarcity of skilled meat cutters making the keeping of meat shops open longer hours difficult, if their skilled men were drafted as they had been in the past.

The banks in San Diego close at 3 PM just as during peace times which makes it very difficult for workers on the day shift to attend to banking matters. The Bank of America is constructing a branch bank near the Consolidated plant, and there is a tentative understanding that it will stay open late. This will be the first bank in San Diego providing such service.

Transportation

Practically all of the aircraft plants visited mentioned the transportation difficulties in San Diego. There has been a committee working on this problem for the past year and one-half but still very little seems to have been accomplished.

There usually are enough buses running from the plants into town, but there are not enough buses running out to the residentail areas. Almost everyone agreed that there was a need for cross-town buses which would cut the travel time for the war workers and obviate the necessity to go to the Plaza downtown to change buses which causes a traffic congestion.

There has been some difficulty in getting additional buses to meet the new needs. But there has been an even greater problem of getting drivers and operators for the buses and street cars. There is a bus parked on one of the downtown streets with a sign on it reading:

JUST ONE OF MANY BUSES IDLE FOR LACK OF DRIVERS.
UNCLE SAM WANTS YOU TO DRIVE A BUS OR STREET CAR
TO FIGHT THE BATTLE OF TRANSPORTATION.

The San Diego Street Railway Company is now recruiting women bus drivers in the midwest.

Housing

The OPA rental regulations have aggravated the housing situation in San Diego. The rentals were frozen as of January 1, 1942 which is the low rental season for San Diego because it is the off-tourist season. During the time from 1938 to 1941 the fleet was not in San Diego as formerly and rentals dropped very low. Consequently the rentals as of January 1942 were really at the level of 1939-1941 rentals.

This has given rise to many bad practices to get around the OPA regulations. Some places charge as much as $25 a month extra if there are children in the family. People looking for houses and apartments advertise in the papers that they will pay a $25 reward, or some such sum, if they can find a house. This actually means that they will pay $25 a month extra each month over and above the listed rental rate, rather than its being a lump sum payment of $25.

Some houses built originally for sale are now open for rent because these places are able to charge much higher prices in not being held to a rental level as of January 1942. At the same time there were reported to be many homes in San Diego with rooms to rent, but they were not being opened for rental because of the low level of rentals which they are held to for January 1942.

Housing

The 11th Naval District Office feels that the local OPA officials should be given power to make local rental adjustments in cases where rentals are frozen to abnormally low levels. This would do much to eliminate the many secret over-charges. Rentals could possibly be based upon an average over a period of time instead of being based upon a fixed sum as of a certain date.

Recruiting workers and housing: There were reports from several sources that people being recruited in the east were led to believe that housing was available for them when they got here. Some of these people have even come into the local housing center and asked for the keys to their house when they arrive in the city. In advertisements in the newspapers in the midwest for workers to come to work at Consolidated there were reported to be statements that housing would be available.

There were also known to be instances where local housing authority representatives have told people they must get a job at Consolidated before being allowed to get a house in one of the war housing projects. The 11th Naval District Office checked on one such case and found that the person had actually been told this at the housing center. The housing officer checked with the housing center and found that some of the people there did have the mistaken idea that some of the houses were reserved for Consolidated workers, and immediately clarified this matter so no more people were told that they had to work at Consolidated before getting housing.

Public housing in San Diego

In the San Diego area there are approximately 10,000 families housed in war housing units. From January 1943 to September 1943, 6000 families have been placed in war housing projects. This included both new and reoccupied houses.

Present war housing facilities in San Diego (Sept. 1943):

11,586	Family Dwelling
1,024	Dormitory accommodations for single women
80	Dormitory apartments for women with cooking facilities
650	Public trailers
13,340	

In addition there are spaces for 1000 private trailers. No more than four are allowed to live in one trailer.

There is now an application in Washington for 14,000 additional housing units for San Diego. 7000 are for war industries. 7000 are for the Navy, including 4000 for service staff personnel, and 3000 for war casualties, service families, and men temporarily stationed here while their ships are being repaired and overhauled.

There has been an approval for construction of 3500 family units in Old Town. The War Production Board has just granted AA-1 priorities for this housing project placing it in the same priority rating as Army and Navy work. It is anticipated that this project will be completed March 31, 1944.

In January 1943 there were 2500 unfilled applications for housing and in September there were 3500 unfilled applications on file at the housing center. There have been 1700 vacates in the past eight months but this includes families moving from one unit to another such as those going from Linda Vista to Chula Vista to be nearer Rohr Aircraft.

There is nothing available in war housing except when families leave, and the turnover is now about 50 to 60 families a week. The turnover has diminished in the last month or so.

Linda Vista: Linda Vista is the largest war housing project in San Diego with some 19,000 to 20,000 people. It has a fire department, library, Safeway store, and a large shopping center is under construction. There are more people living there from the State of Illinois than any other state.

Demand & Supply - Women - California

Older Women

A director for the U. S. Employment Service in San Francisco says that many women 50 to 65 years old are now getting jobs as clerical workers in private industry. (San Francisco Chronicle, August 26, 1942)

California.

4-24-42

Women working in men's jobs are estimated to be at least 22,000 in Los Angeles County and 38,000 to 40,000 in Southern California. Twenty-five war industry plants that hired men only before Pearl Harbor now employ women. The aircraft plants now have 16,000, accessory and sub-contract plants 3,000 more. (Los Angeles Examiner, September 9, 1942.)

California

12-14-42

About 90,000 questionnaires are to be distributed to women in San Diego, so women may register, voluntarily for full or part-time jobs. (S.D.Union, Nov. 25, 1942).

Calffornia

Questionnaires are to be distributed in Sacramento by Girl Scouts, as a basis for determining number of women available for war work or training. (S. Bee, Dec. 22, 1942.)

California

1-25-43

A recent survey in San Diego that included distribution of 50,000 questionnaires showed about 9,300 women with no child-care problems available for jobs. 4,502 otherwise available had small children. (Los Angeles Times, Jan. 7, 1943.)

California - Numbers

1-21-42

Women are replacing men in California industry at the rate of about 25,000 a month. Women held 15.3 percent of industrial workbench jobs in July compared to 12.6 percent in June. Expansion in war industries, especially aircraft, along with a seasonal rise in canning increased women's employment from 76,500 in June to 101,800 in July. Aircraft plants had 23,600 women in July. None of the private shipyards employed any appreciable number of women, but a government yard employed over 2,000. (San Francisco Chronicle, September 16, 1942.)

California - Unemployment

9-18-43

A recent analysis, based on a sample of unemployment insurance claimants in 1941, showed about 114,000 or 29 percent to be women. Classification by industry of last employment during the base period indicated that 39 percent of the women were employed in trade, 33 percent in manufacturing, chiefly food and apparel, and 18 percent in service. (Employment Security Bul. No. 11, Calif. Dept. of Employment.)

California

9-25-43

The San Francisco Bay Area Production Urgency Committee ended several war contracts on September 24 in the interest of more essential work and renewed contracts in several plants which, it was agreed, could not advantageously be used for more necessary tasks.

In one plant, whose contract was renewed, two-thirds of the employees were middle-aged women who could not justifiably be transferred to shipyards or other industries where work of a heavy type was the rule. (N.Y. Times, Sept. 25, 1943.)

California

9-18-43

It is hoped to recruit 5,000 women in San Diego by means of a block canvass. They are needed for the aircraft "victory" shifts. The alternative will be to import workers or to allow production to slacken. (San Diego Tribune, Aug. 31, 1943.)

California

12-4-43

As of July 1, essential industries reported need of 39,000 workers by Sept. 1. Only 6,300 were secured, 4,400 of them women. 41,500 workers will be needed by March. Since women form the chief reserve a campaign is planned to persuade them to take jobs. (N.Y. Wall Street, Nov. 12, 1943)

California - Oil

There are more than 200 women working for Standard Oil in a 50-mile area from Taft to Fresno. They are pumpers, natural gas plant trainees, chart readers, samplers, gaugers and lab. assistants. A pumper has a responsible job. Each woman takes care of a string of between 40 and 70 producing wells. She inspects each to see that all moving parts are oiled and the pump working properly. They are often so expert they can tell by sound whether the pump is working correctly. They drive from well to well in light pick-up trucks. (San Francisco Chronicle, Nov. 21, 1943.)

California - Working Mothers

Major aircraft plants in Los Angeles County now employ mothers of 3,966 children under 5, and 17,315 children from 5 to 15, according to figures compiled by county school officials. (Los Angeles Times, Nov. 20, 1943)

California - Aircraft

General manager of War Production Council, Los Angeles, states that a house-to-house canvass of 1,500 homes for aircraft workers found 150 women who promised to work. Half reported at the plant, 4 accepted jobs. Then 3 quit. (Wash. Star, Dec. 3, 1943)

California - Rubber

More than half the employees at the U. S. Rubber plant are women. Buna S. is made here and is fashioned into airplane tires, or yard goods for making cells for gasoline tanks in the plane wings. Women feed machines that roll the rubber, cut it and cement beads on the edge. Women "splicers" do an expert job in cutting material and covering the wing tanks, using rubber, nylon, cotton and rayon. This is so much like dressmaking, women do it best. The plant expects to expand after the war. (Los Angeles Times, Dec. 18, 1943)

California - Fruit Packing

2-5-44 The citrus industry, Ontario, needs 500 more women packers. (Los Angeles Times, Jan. 15, 1944)

Food - California

2-26-44 Women are urgently needed to learn orange packing, according to manager of U.S.E.S., San Bernardino. When skilled they can earn $6 to $7 a day. (S.B. Sun, Feb. 13, 1944)

California - 3

California Lumber and Fish

In October, inspections were made by representatives of the Industrial Welfare Commission of lumber companies and fish canneries on the Redwood Highway where women are employed.

It was found that the International Fish Workers Union (CIO) has a contract with the fish plants covering men, but women are not yet covered. An extensive fish industry is developing at Eureka with women doing the greater part of the work. Now fish are not canned but prepared for use fresh. Fish, chiefly kinds of cods, are cut into fillets, packed in ten-pound cartons and rushed to cold storage for quick distribution to the armed forces. Women are expert in cutting off the fillets, after which the fish carcass passes on a belt to other women who remove the livers to be used for vitamins. The work is extremely wet. Women wear rubber gloves, boots and aprons. The Welfare Order requires these shall be furnished free. Women cutting sharks to obtain the livers get from $0.80 to $1.10 an hour.

Women are employed at the lumber mills from the first operation of cutting the logs to the last of bundling for shipment. Much lumber is now taken by the Government in a green State. Since this is heavy to handle fewer women are employed than a year ago. (Report for Governor's Council, California, November 1944.)

California - Gasoline

Standard Oil has a new 100 octane gasoline plant nearly ready to go into production at Richmond. Hundreds of women will be needed at this plant. They will be paid $7.24 a day during a two-week training period, then $8.30 and later $8.71. Already Standard employs 1,090 women at its Richmond refinery. The actual work is simple. Women gauge tanks, operate pumps, draw samples, read gauges, operate stills and control instruments. There are three shifts and workers change shifts every week, taking each in turn. Civic groups are to make a house-to-house canvass in the area to recruit workers. (Oakland Tribune and San Francisco News, Oct. 3, 1944.)

California - Shells

1-27-46

The Kaiser Steel Co., near Los Angeles makes 155 mm. and 8 inch shells weighing more than 80 pounds and 100 pounds respectively. They could use 250 women and 250 men immediately. (Los Angeles Times, January 2, 1945.)

California

6-19-43

California manufacturing industries employed 202,600 women wage earners in March, 1945, 14 percent below employment a year ago. Employment in durable goods was 130,400, or 22 percent below March, 1944.

Women are being laid off by shipyards at a much faster rate than men, their employment having declined 63 percent in a year compared with 25 percent in the case of men. The number of women in airplane plants also is declining faster than that of men, but the difference is not great. (Emp. of Women in California, March, 1945)

California-4

California - Shipyards

4-14-45

A representative of WMC in San Francisco expects that from 25,000 to 35,000 shipyard workers in the Bay Area will be laid off from new construction by July 15. He said that removing San Francisco from the "critical industry" classification would not help "as there still is a ban against reconversion to civilian work." There is much dissatisfaction and unrest among shipyard workers because of the uncertainty regarding future employment. From a peak of 131,000 in 1943 employment in six yards has dropped to 57,200 according to an unofficial survey. (San Francisco News, Mar. 13, 1945.)

California - Sawmills

The Hammond Lumber Co., Samoa, is one of the first on the West Coast where women were actually used in the sawmill itself. About 20 are employed. They drive carriers, oil, work as setters on the head rig carriages, work as trimmermen and do some of the lighter offbearing. (West Coast Lumberman, July 1945, p. 67)

7-14-45

Employment of women in factories is at the lowest level since December 1942. Employment in May 1945 compared with May 1944 was as follows:

	Number		Percent of Total	
	1945	1944	1945	1944
All Manufacturing	187,800	238,400	28.0	28.7
Durable goods	114,700	165,400	23.8	25.6
Aircraft	56,200	83,700	39.8	42.0
Shipbuilding	16,100	37,300	10.3	1/ 15.5
Nondurable goods	73,100	73,000	38.9	39.6

(Emp. of Women in Calif., May 1945, Dept. of Ind. Relations Release)

1/ August.

California. San Diego

Women have been particularly hard hit by cancellation of government contracts. The following figures represent the employment situation of women in San Diego County:

Employed in 1940	24,448
Employed in March 1944 (peak)	70,000
Employed Sept. 28, 1945	36,600
Placements by U.S.E.S. Sept.28,1945	700
Receiving unemployment insurance benefits Sept. 28, 1945	8,000
Unaccounted for Sept. 28, 1945	33,400

The last figure represents women who have left the area, or failed to apply for either unemployment compensation benefits or for work.
(California Dept. of Industrial Relations, Report for Governor's Council, October, 1945)

California-5

***Apparel Manufacturing in California. California State Reconstruction and Reemployment Commission, January 1945.

A corporation has been formed by all of the principal units of the industry in San Francisco to accomplish an integrated postwar construction program which will include factories for all branches of the industry, a project known as Apparel City. The most modern conveniences in the form of salesrooms, auditoriums, fashion showrooms, and stockrooms are included. A number of Eastern manufacturers have already made tentative arrangements for space in Apparel City for branch factories. (p. 84)

***California - Transportation

Inspections by the Division of Industrial Welfare during November will probably be the last in the transportation industry. A general survey indicates that within a short time nearly all women will be released from such jobs as bus and street car operators, taxicab drivers and as employees of airlines and other transportation companies. This, to a large extent, is due to the fact that employers and unions think that this is not a woman's field and also because companies find it most difficult to comply with restrictions on hours and working conditions of women. (Calif. Dept. of Industrial Relations, Report for Governor's Council, December 1945. p. 11)

A sample of 1,740 unions reported a membership of [illegible] women in 1944, 23 percent of the total. Important [illegible]

Industry	[illegible]
Manufacturing	[illegible]
Transportation equipment	[illegible]
Food and tobacco	[illegible]
Nonmanufacturing	[illegible]
Hotels, eating and [illegible]	[illegible]
Trade	[illegible]

(Union Labor in California 1944, [illegible] of Labor Statistics and [illegible]

***California - Women in Factories

From February 1945 to February 1946 women's employment in manufacturing in California decreased by 122,200, according to State estimates. Employment in textiles and apparel rose, while there was a marked drop in those industries which were war industries. The situation in selected industries was as follows:

	Women employed	
	1946	1945
All manufacturing	85,800	208,000
Aircraft	10,000	65,700
Shipbuilding	900	26,700
Food and tobacco	17,400	23,300
Textiles and apparel	25,800	24,800

(California Dept. of Industrial Relations, Employment of Women in California, February 1946.)

12

2-3-47

For the week ending December 15, 1946, 243,997 persons in California were drawing unemployment insurance and veteran readjustment allowances. Of these, 110,720 or almost 46 percent were women. More than half of the women were 35 years old or over, only 15 percent, under 25. Current unemployment had lasted 11 weeks or more for 40 percent of the women, but less than 4 weeks for 26 percent.

Distribution of women claimants in major occupation groups was as follows:

	Percent distribution
Total reporting occupation	100.0
Semiskilled	26.6
Unskilled	24.6
Clerical and sales	20.7
Skilled	10.6
Service	9.3
Agriculture, forestry and fishing	4.1
Professional and managerial	4.0

For every job opening reported for women there were 5 claimants for unemployment insurance. Over half the jobs offered hourly wages of 75 cents or more. The distribution of job openings by industry was as follows:

	Percent distribution
All industries	100.0
Trade and service (except domestic)	42.9
Manufacturing	20.2
Domestic service	14.8
Government	13.3
Transportation and utilities	8.3
Other	.4

The data regarding claimants were obtained from samples taken in each of the 90 local offices and then expanded in each office to represent the total count of claims. The combined weight of all samples was about 17 percent of the State's total insured unemployment. Data on characteristics of job openings were obtained from active files of USES. (Research Series, Characteristics of Claimants and Job Openings in Mid-December 1945. California, Department of Employment, Research and Information. Report 333 #1 May 1946.)

California - 7

***California - Postwar Shifts in Female Employment

The number of female factory workers in California has increased to 93,100 in June 1946 from 91,300 in May. This compares with 177,100 a year ago and with 57,700 in June 1941. The apparel group accounted for 27 percent of all women production workers in manufacturing industries in June. The number of female wage earners in this industry rose to a new high of 25,100 in June, nearly 4,000 above the June 1945 level. The most significant change in durable goods industries has been the sharp reduction in female employment in private shipyards. As of June, the number in the shipbuilding industry had dropped to approximately 300 from the December 1943 all-time high of close to 41,000. There is increasing evidence that the rate of withdrawal of women from the labor force in California has tapered off sharply and it appears that the peacetime ratio of women to men will remain significantly higher than before the war. (California Department of Industrial Relations, Division of Labor Statistics and Research, "Employment of Women in California," June 1945.)

***California - Employment of Women

1p-2-1-46 Women factory employees in California in August 1946 numbered 127,300, a reduction of 32 percent since August 1945. However, they were still 23-1/2 percent above the number reported in the same month in 1941.

The number employed and the changes in the 12-month period in selected industries were as follows:

	Number employed August 1946	Change from August 1945
All manufacturing	127,300	- 59,700
Food and kindred products	54,600	↗ 5,200
Apparel	25,400	↗ 4,200
Aircraft	8,500	- 34,100
Iron and steel and their products	4,900	- 4,800
Machinery (except electrical)	3,200	- 3,300
Electrical machinery and equipment	3,200	- 3,900
Furniture and wood products	2,900	- 3,100
Textile mill products	2,600	↗ 300
Rubber products	2,300	- 2,100
Shipbuilding	200	- 9,400

(Employment of Women in California, Department of Industrial Relations, August 1946.)

California - 8

***California - Unemployment, 1943, 1944

11-4-26

A sample study of claimants for unemployment insurance benefits in the benefit years ending in 1943 and 1944, has been made by the California Department of Employment. Findings are based on about 9 percent of the 1943 claimants and 29 percent of those in 1944.

From 1943 to 1944 the number of claimants decreased, men much more than women. Women were 39 percent of all claimants in 1943 and practically 60 percent in 1944.

During the period of the study the California Unemployment Insurance Act covered workers employed by employers of four or more persons in nearly all types of private employment; the major exceptions were agriculture, railroads, and self-employed individuals.

Claims were classified by the industry of the claimant's employment in the last quarter of his base period. The numbers of women's claims and their distribution by industry for the 2 years were as follows:

	1943	1944
Number of women's claims	97,700	41,940
	Percent distribution	
All industries	100	100
Manufacturing	43	57
Wholesale and retail trade	35	27
Service	14	6
All other	8	8

In each year the largest number of women claimants in manufacturing were reported in food and kindred products industries. (Research Series Characteristics of California Unemployment Insurance Claimants with Benefit Years Ending in 1943 and 1944. California Department of Employment, 1946. Bul. No. 16.)

***California - Employment in November

1-13-47

Women production workers in manufacturing in November in California "registered the first year-to-year increase since the downturn from the wartime peak levels." They numbered 100,500 in November 1946 compared with 97,600 in 1945 and 72,400 in 1941.

In certain of the industries that expanded markedly during the war there were more women in November 1946 than in the previous year, and in all such industries reported there were considerably more women than in 1941, as the following tabulation of women's employment shows:

	1946	1945	1941
Aircraft	9,600	11,200	3,400
Iron and steel and their products	4,900	4,000	1,600
Machinery (except electrical)	3,500	2,700	600
Electrical machinery and equipment	3,500	2,900	1,100
Rubber products	2,500	2,100	700

(Employment of Women in California, November 1946. California Department of Industrial Relations.)

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***California - Women in Manufacturing 8-10-47

"Women are being rapidly eliminated from the heavy manufacturing industries. An example is the large plant in northern California which during the war produced hand grenades and bombs. At that time over 500 women were employed in production jobs -- today there are three left, two of whom are crane operators. The two women were retained as crane operators because the management had found them more adept than men in the handling and operation of the large traveling cranes. In another plant, previously employing 670 women, only those in clerical positions are still present.

"In light metal manufacturing, which requires technical skill and manual dexterity, women are retaining the place acquired by them during the war. As always, there is still a preponderance of women in the fields of ceramics, draperies, clothing, hosiery, etc., and a great many are also employed in the manufacturing of all kinds of food products, paper products, light wood products, bottling of wine and other beverages, and in the printing trades. The income of women employed in all of these industries has been drastically curtailed by the elimination of overtime and the return to a 40-hour week without a proportionate increase in their hourly wage rates, which today provide a comparatively small weekly take-home pay." (California Department of Industrial Relations. Report to Governor's Council, February 1947, p. 10.)

***California - Earnings of Unemployment Insurance Claimants 4-28-47

The Department of Employment of the State of California has made a study (based on approximately a 17 percent sample) of 86,700 men and women eligible for unemployment insurance who filed valid claims during the year 1944. Of this number 55,338 or 64 percent were women. The data presented include the claimants' occupation, industry, and earnings during the 1-year base period prior to the filing of a claim (more precisely, the first 4 out of the last 5 completed calendar quarters).

Nearly one-third of the women were unskilled workers, who worked chiefly at food canning and preserving occupations. Nearly a fifth were clerical and sales workers, and more than one-sixth were agricultural workers, principally graders and packers. Just over 60 percent of the women were in manufacturing industries, and 24 percent in trade.

The distribution of the women claimants according to their earnings in the base year was as follows:

Earnings	Number	Percent distribution
Total	55,338	100.0
$300 -$499	8,871	16.0
$500 -$999	19,854	35.9
$1000 -$1499	12,358	22.3
$1500 -$1999	7,497	13.5
$2000 and over	6,758	12.2

(State Department of Employment, State of California. Characteristics of California Unemployment Insurance Claimants with Benefit Year Ending in 1945. Bulletin No. 17. Feb. 7, 1947.)

Pages missing in original

***California - Employment in Agriculture 2-10-47 10

" .... This year, for the first time, agricultural industries employing women and minors were surveyed in order to compile data for the Commission in connection with the revision of IWC - Order 8NS -- Handling Farm Products After Harvest -- and to determine whether the percentage of women and minors so employed would warrant the writing of an 'Agricultural' Order. The Division /of Industrial Welfare/ has long been aware of the deplorable conditions under which migratory workers in agricultural industries live and work since enforcement of IWC Order 8NS has given us ample opportunity to observe these conditions at first hand. While it has been almost impossible to establish a line of demarcation between 'harvest' and 'after harvest' work, many activities, such as pitting and drying of fruit, operation of packing sheds on farms, sale of homegrown commodities, etc., are definitely 'after harvest' in nature. For compilation of data on a statewide basis one agent of the Division made a twelve-month survey of conditions in agricultural industries and other members of the staff reported their observations. ... Before the war it was estimated that 25,000 women worked in agricultural pursuits. During the war the estimate rose to 150,000. Since the war volunteer workers have disappeared and college students and neighborhood women have been recruited. Women work in girdling and trimming of grape vines, picking up and sorting potatoes, picking peas, thinning fruits and vegetables, cutting, bunching and wrapping vegetables in the fields, picking figs and other low growing fruits, picking cotton, hand pollinization of dates, working on seed ranches, driving trucks, picking hops, cherries, strawberries and other fruits, cutting and pitting of peaches and apricots and other similar jobs. The seasonal demand for workers begins in July and there is a continuous demand through October for harvesting-labor in fruit, vegetables, cotton, hops and nuts.

. . . . . .

"A former regional director of the Farm Security Administration, at a hearing before the Industrial Welfare Commission on January 10, 1946, made the following statement:

. . . . . .

"'It should be emphasized that in many respects employment in the specialty crops of California corresponds closely to the norms of industrial employment. ... the scale of operations, the intensity of application of labor and capital and the emphasis on less casual business practices of the family-type farm to business practices which are very similar to those of urban commercial and industrial establishments. Under these conditions it is remarkable that workers should not have the protection of the legal safeguards which have generally come to be recognized as essential in more orthodox employment.'" (California Department of Industrial Relations, Report for Governor's Council, January 1947, pp. 13, 15.)

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***California - Earnings of Unemployment Insurance Claimants 4-28-47

The Department of Employment of the State of California has made a study (based on approximately a 17 percent sample) of 86,700 men and women eligible for unemployment insurance who filed valid claims during the year 1944. Of this number 55,338 or 64 percent were women. The data presented include the claimants' occupation, industry, and earnings during the 1-year base period prior to the filing of a claim (more precisely, the first 4 out of the last 5 completed calendar quarters).

Nearly one-third of the women were unskilled workers, who worked chiefly at food canning and preserving occupations. Nearly a fifth were clerical and sales workers, and more than one-sixth were agricultural workers, principally graders and packers. Just over 60 percent of the women were in manufacturing industries, and 24 percent in trade.

The distribution of the women claimants according to their earnings in the base year was as follows:

Earnings	Number	Percent distribution
Total	55,338	100.0
$300 -$499	8,871	16.0
$500 -$999	19,854	35.9
$1000 -$1499	12,358	22.3
$1500 -$1999	7,497	13.5
$2000 and over	6,758	12.2

(State Department of Employment, State of California. Characteristics of California Unemployment Insurance Claimants with Benefit Year Ending in 1945. Bulletin No. 17. Feb. 7, 1947.)

***California - Employment of Women 6-16-47

"Although the total number of production workers in manufacturing industries in March 1947 was about 29 percent higher than in March 1941, the percentage increase over the past 6 years has varied considerably for male and female workers. In all manufacturing industries combined, the gain in female employment has been 86 percent contrasted with a rise of 20 percent in the number of male wage earners.

"The most significant difference, however, is found in durable goods industries. In this category there were 15 percent more male workers in March 1947 than in March 1941, but the number of women during the period increased by more than 300 percent. Female employment in nondurable goods factories rose 48 percent between March 1941 and March 1947, compared with a 31 percent gain for male employment in the same industries.

"Although the rise in total factory employment between March 1941 and March 1947 has been about the same in the Los Angeles and San Francisco Bay industrial areas, the change in female employment has differed significantly. In the south the number of female factory workers rose by 88 percent in the 6-year period as against 59 percent in the north. This difference is due in large part to the fact that the aircraft industry is concentrated in the south, and also there has been a greater development of the apparel industry in the Los Angeles area than in the San Francisco Bay region." (California Dept. of Industrial Relations, Report for Governor's Council, May 1947. p. 8.)

California Unemployed Women

1-26-48

For a number of years the California State Department of Employment has issued reports of claimants of unemployment insurance benefits. A recent report covers claimants who filed a claim between January 1 and December 31, 1945, and whose benefit years ended between January 1 and December 31, 1946. Thus unemployment caused by the ending of the war is included.

Of more than 400,000 claimants, half were women. A little less than a fifth of the women were under 25 years of age at time of filing their claim. More than half were 35 or older.

Age at time of filing claim	Percent distribution	
	Men	Women
All ages	100	100
Under 25 years	6	18
25 - 34 years	19	28
35 - 44 years	24	26
45 years and over	51	28

Nearly three-fourths of the women had been employed in manufacturing. Of these, more than half came from factories making transportation equipment other than automobiles (presumably, chiefly aircraft). More than a fourth were unskilled workers; nearly a fourth, semiskilled; more than a fifth, clerical or sales workers.

Industry & occupation	Women claimants			
	Number	Percent distribution		Percent of total
All industries	211,027	100		50
Manufacturing	152,184	72	100	51
Transportation equipment (except automobiles)	85,937	-	56	47
Food and kindred products	23,001	-	15	76
Apparel and finished fabric products	6,104	-	4	78
Machinery (including electrical)	11,005	-	7	52
All other	25,137	-	17	48
Wholesale and retail trade	33,511	16		66
Services	13,659	6		48
All other	11,873	6		26
All occupations	211,027	100		50
Unskilled workers	57,076	27		60
Semiskilled workers	49,121	23		56
Clerical and sales workers	46,498	22		70
Skilled workers	20,303	10		22
Service occupations	17,478	8		52
Agricultural and fishing occupations	12,520	6		70
Professional and managerial occupations	8,031	4		31

Practically 28,000 women worked seasonally in food canning industries or assemblies of farm products. They constituted 85 percent of such workers. (Characteristics of California Unemployment Insurance Claimants with Benefit Years Ending in 1946. Research Series Bulletin No. 23. California State Department of Employment. 1947.)

California-13

California - Unemployment Insurance Claimants

4-17-48

In August 1947 there were 112,141 individuals claiming unemployment benefits from the Unemployment Fund of California. Of these, 53,828 or 48 percent were women. Women claimants by occupational group and race were as follows:

	Number[1/]	Percent of all claimants	Number	Percent of all claimants
All groups	47,298	49	6,530	43
Professional and managerial	3,717	36	111	37
Clerical and sales	18,417	74	499	70
Service	7,180	46	3,009	57
Agricultural	1,447	66	14	6
Skilled	2,840	17	263	15
Semiskilled	8,625	50	1,622	45
Unskilled	7,072	54	1,012	31

1/ Based on approximately a 10 percent sample of claimants in week ending Aug. 28, 1947.

The median age of women claimants was 36.5 years; that of men, 45.6 years. (Characteristics of the Unemployment Insurance and Veteran Claimants and Job Openings in August 1947. Research Series, Bulletin 22. California Employment Stabilization Commission.)

San Francisco, Applicants for Work

5-24-48

"... Over 57,000 applicants visited the San Francisco Offices in March and this total represents the heaviest traffic since January 1946. Active applications-for-work rose from 20,960 reported in February to 23,941 including 7,796 women and 7,050 veterans. The most significant increase was among women applicants, many of whom were the first to be laid off in cutbacks for power conservation while a large number of others were affected by the seasonal low period in the garment industry.

* * * * * * *

"... Each succeeding month shows that a growing proportion of the unfilled job openings are for women in clerical positions. Currently, other jobs for women are restricted largely to domestic work or power machine operation." (San Francisco Labor Market Summary, Apr. 1948.)

California - 14

California - Social Workers

11/22/48 "When on July 18, 1945, Governor Warren signed the bill creating a Board of Social Work Examiners, California became the first State in the Union to provide for the registration of social workers. The bill (A. B. 1812) was sponsored by the California Conference of Social Welfare and was the culmination of twelve years' experience in the registration and certification of social workers on a voluntary, unofficial basis. It established within the Department of Professional and Vocational Standards a Board of Social Work Examiners consisting of seven members to be appointed by the Governor with the approval of the State Senate, and outlined the duties and qualifications of those members. The law became effective September 15, 1945."

The "first research project was completed through the cooperation of the School of Social Welfare at the University of California and represents a study of the social workers who registered prior to January 1, 1947, or during the blanketing in period." The study is based on a 10 percent random sample.

"It is the purpose of this study to present an analysis of the qualifications of the persons registered during 1946 by age, sex, education (both general and professional), and present position."

Of the 400 persons included, 315 were women. Two-thirds of the women and more than two-thirds of the men were college graduates or had received higher degrees. Relatively more men than women had done graduate work. Over half the women and three-fourths of the men had had no professional education. One-fourth of the women and less than one-fifth of the men had had 1 year or less of such education.

Much of the information secured was not reported by sex. More than half of all persons were between the ages of 30 and under 50. The most usual fields of activity of persons employed in social work at the time of the study were: public assistance, 39 percent; family and child welfare, 20 percent; administration, 18 percent; and probation and parole, 11 percent. (First Biennial Report to the Governor, July 1, 1947, /California/ Board of Social Work Examiners, Department of Professional and Vocational Standards, pp. 7, 9, 11-13.)

California - Women in Manufacturing

11/29/48 With the exception of the first month following the close of the war, more women were employed as wage earners in California manufacturing industries in September than in any peacetime month in history. The number in nondurable goods manufacturing industries reached a peacetime peak and was exceeded only once during the war, and then by a margin of 200. Female employment in durable goods plants exceeded all previous months of this year and, although significantly below war levels, was 2 percent above September a year ago. Within the durable goods division an all-time high was established in September in the stone, clay, and glass products industry."

There were 133,000 women production workers in manufacturing in September 1948, an increase of 46 percent since September 1941. Employment of women in durable goods manufacture more than doubled.

In the making of rubber products, nonferrous metals and their products, and machinery (both electrical and other) there was an increase in the employment of women of 300 percent or more. The numbers more than doubled in the following industries: stone, clay and glass products; iron and steel and their products; and aircraft and parts. (Department of Industrial Relations. Employment of Women in California, September 1948.)

California - 15

California. Fruit and Vegetable Canning

2-14-49 "There are approximately 300 fruit and vegetable canneries in the State employing about 52,000 women in the peak season. The agent assigned to this industry reports as follows:

"Sixty-eight canneries have been selected to be reviewed in this report in order to give a composite picture of the State-wide operation. Canneries located in the following counties have been inspected: Alameda, Butte, Contra Costa, Fresno, Kings, Los Angeles, Madera, Merced, Monterey, Clara, Santa Cruz, Stanislaus, Sutter, Tulare and Yolo. The following statistics will give some idea as to the results of concentrated inspection in these 68 canneries. Five canneries were found to be in complete compliance with IWC Order 3R. Four were found where women were not receiving premium pay for working in excess of eight hours per day. Two canneries were found where women were working in excess of 72 hours a week without taking the 24-hour break as provided by IWC Order 3R. Two were without adequate record keeping and five were not recording the in and out records at the time at which they occurred. This violation is possible where the hand punch has replaced the time clock, as the floor lady collects the cards and punches them at her leisure. It is interesting to note that the hand or 'conductor' punch is rapidly replacing the time clock. This has occurred because management contends that it is more accurate and reduces the possibility of one worker clocking in for another.

"Two companies, one of which has numerous canneries throughout the State, use a modified form of the Bedeaux System whereby the worker is paid for production based on various time studies. Although the operation is essentially a piece work operation, no duplicate cards are given because an Albertoli tabulator is used. This complies with Section 6(b) of Order 3R which permits the use of a mechanical system of recording the piece work in lieu of issuing duplicate piece work cards. In some instances the worker is obliged to accept the time-keeper's records because of the complicated recording system.

"Twenty-one of these 68 canneries pay all employees on a straight hourly basis. The remaining 47 pay some of the employees on an hourly basis and others on a piece rate basis. ..." (California Department of Industrial Relations, Report for Governor's Council, January 1949, pp. 14-15.)

California. Women in Manufacturing

2-28-49 "The number of woman production workers in California manufacturing industries increased to an average of 101,400 in 1948 from 99,200 in 1947, a rise of 2 percent. This was the first annual increase in female factory employment since 1944 and reflects principally gains in the apparel and food products industries. The 1948 average was approximately 53 percent above 1941."

The number of female production workers and the ratio of women to the total factory force in manufacturing industries in 1941, 1944, and 1948 are shown below:

	All manufacturing		Nondurable goods		Durable goods	
	Number	Percent	Number	Percent	Number	Percent
1941	66,400	14.9	57,400	33.7	9,000	3.3
(peak year) 1944	240,900	29.0	80,200	40.2	160,600	25.4
1948	101,400	20.8	76,600	35.2	24,800	9.2

(California Department of Industrial Relations, Employment of Women in California, Summary for 1948.)

California-14

Women in Stores

1-14-49 "Industries covered by Industrial Welfare Commission Order 7-R are industries which predominate in the employment of women and minors and constitute a large part of the work of this Division. According to the Division of Labor Statistics and Research 82,000 women are employed in this industry in the City and County of San Francisco and 170,000 in Los Angeles County. Inspection figures in San Francisco reveal that in large mercantile firms employing 1,000 or more persons, only 10 percent of the employees are men. Men are usually found employed in the management and supervisory positions, in strictly men's wear departments, in fur, shoe, furniture, rug, shipping and receiving departments. Women employees predominate in all other fields. Women for the first time broke into the shoe selling field during the war, and many have remained. ...

"Food stores generally pay the highest wages and the largest percentage of unionization is in these stores. Women were seldom employed in this field before the war but are now employed in large numbers and have earned seniority rights under union contracts. Apprentice clerks in one area start at $1.25 an hour, advancing to $1.625 per hour as journeymen clerks. Women hold practically every type of job in the stores except as warehousemen. There are grocery and produce checkers, clerks in bakery goods, delicatessen and grocery departments, cashiers in meats and groceries; office workers and women are now engaged in wrapping and packaging meat for serve-yourself meat departments. One agent reports that in her area 29 women checkers in food markets receive over $250 a month."

In 1940 there were 45,678 women employed in retail trade (exclusive of eating and drinking places) in Los Angeles County, and 12,462 in San Francisco County. (California Department of Industrial Relations, Report for Governor's Council, February 1949; and 16th Census of U. S., 1940, Population, Vol. II. Part 1, Table 23, pp. 558-560.)

California. Potato Packing

1-17-49 "The largest potato growing section in the State is Kern County where during the season 1,000 to 1,500 women are employed in the potato packing sheds. The potato crop here is harvested between May 1 and July 4, with some variation due to weather and other conditions. ...

"Women work on the potato washing machines where they grade the potatoes at a moving belt which carries the washed potatoes to the sacks for packing. All potatoes dug during the day must be packed and refrigerated the same day to eliminate down grading by government inspectors. ... The sheds work 6 days a week general during the peak of the season and from 8 to 11 hours daily. Women are paid either on a piece rate basis or an hourly rate. ... In this area the basic hourly rate is 75 cents an hour. The piece rate earnings are approximately 85 cents an hour." (California Department of Industrial Relations. Report for Governor's Council, December 1948, p. 14.)